

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Atty. Docket No: 078728/0106

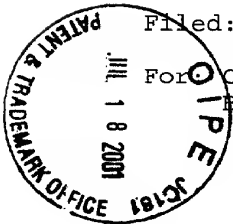
In re patent application of

ROBERTS, JOSEPH et al.

Serial No. 09/833,745

Filed: April 13, 2001

For CLONING, OVEREXPRESSION AND THERAPEUTIC USE OF
BIOACTIVE HISTIDINE AMMONIA LYASE



STATEMENT TO SUPPORT FILING AND SUBMISSION IN
ACCORDANCE WITH 37 C.F.R. §§ 1.821-1.825

Assistant Commissioner for Patents
Washington, D.C. 20231
Box SEQUENCE

Sir:

In connection with a Sequence Listing submitted concurrently
herewith, the undersigned hereby states that:

1. the submission, filed herewith in accordance with 37
C.F.R. § 1.821(g), does not include new matter;

2. the content of the attached paper copy and the
attached computer readable copy of the Sequence Listing, submitted in
accordance with 37 C.F.R. § 1.821(c) and (e), respectively, are the same;
and

3. all statements made herein of their own knowledge are
true and that all statements made on information and belief are believed to
be true; and further, that these statements were made with the knowledge
that willful false statements and the like so made are punishable by fine
or imprisonment, or both, under Section 1001 of Title 18 of the United

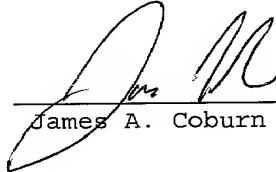
09833745 071501

Serial No. 09/833,745

States Code and that such willful false statements may jeopardize the validity of the application or any patent resulting therefrom.

Respectfully submitted,

July 5, 2001
Date


James A. Coburn

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800-318-3021

00370 SH6600

SEQUENCE LISTING

<110> ROBERTS, JOSEPH
 SETHURAMAN, NATARAJAN
 MACALLISTER, THOMAS

<120> CLONING, OVEREXPRESSION AND THERAPEUTIC USE OF
 BIOACTIVE HISTIDINE AMMONIA LYASE

<130> 078728/0106

<140> 09/833,745

<141> 2001-04-13

<150> 60/197,770

<151> 2000-04-14

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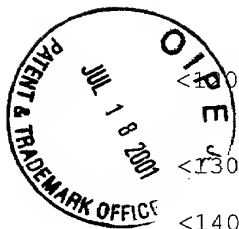
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Arg Glu Val Val Arg Ala Leu Met Phe Leu Arg Ala Lys Thr Leu Ala
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Gly Cys Ser Gly Asp Leu Ala Pro Leu Ser His Cys Ala Leu Val Leu
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Ser	Gly	Xaa	Thr	Gly	Val	Arg	Pro	Xaa	Val	Xaa	Xaa	Thr	Met	Xaa	Gly	115	120	125	
Xaa	Leu	Asn	Ala	Gly	Ile	Thr	Pro	Val	Val	Xaa	Glu	Tyr	Gly	Ser	Leu	130	135	140	
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Pro Gln Val Leu Glu Glu Leu Ala Ser Val Arg Ala His Ile Asp Ala
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Leu Ala Ser Ala Asp Thr Pro Val Tyr Gly Ile Ser Thr Gly Phe Gly
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 Arg Glu Val Val Arg Ala Leu Met Phe Leu Arg Xaa Lys Thr Xaa Ala
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 Ser Gly Xaa Xaa Val Arg Pro Xaa Val Xaa Xaa Thr Met Xaa Gly Xaa
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 Cys Ser Gly Asp Leu Ala Pro Leu Ser His Cys Ala Leu Val Leu Met
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 Thr Ala Ala Xaa Ser Xaa Glu Ala Xaa Leu Gly Thr Asp Xaa Val Xaa
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098346042660

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      165          170          175

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Val Ala Gly Leu Glu Pro Leu Thr Leu Ala Ala Lys Glu Gly Leu Ala
 180 185 190
 Leu Leu Asn Gly Thr Gln Ala Ser Thr Ala Tyr Ala Leu Arg Gly Leu
 195 200 205
 Phe Tyr Ala Glu Asp Leu Tyr Ala Ala Ala Ile Ala Cys Gly Gly Leu
 210 215 220
 Ser Val Glu Ala Val Leu Gly Ser Arg Ser Pro Phe Asp Ala Arg Ile
 225 230 235 240
 His Glu Ala Arg Gly Gln Arg Gly Gln Ile Asp Thr Ala Ala Cys Phe
 245 250 255
 Arg Asp Leu Leu Gly Asp Ser Ser Glu Val Ser Leu Ser His Lys Asn
 260 265 270
 Cys Asp Lys Val Gln Asp Pro Tyr Ser Leu Arg Cys Gln Pro Gln Val
 275 280 285
 Met Gly Ala Cys Leu Thr Gln Leu Arg Gln Ala Ala Glu Val Leu Gly
 290 295 300
 Ile Glu Ala Asn Ala Val Ser Asp Asn Pro Leu Val Phe Ala Ala Glu
 305 310 315 320
 Gly Asp Val Ile Ser Gly Gly Asn Phe His Ala Glu Pro Val Ala Met
 325 330 335
 Ala Ala Asp Asn Leu Ala Leu Ala Ile Ala Glu Ile Gly Ser Leu Ser
 340 345 350
 Glu Arg Arg Ile Ser Leu Met Met Asp Lys His Met Ser Gln Leu Pro
 355 360 365
 Pro Phe Leu Val Glu Asn Gly Gly Val Asn Ser Gly Phe Met Ile Ala
 370 375 380
 Gln Val Thr Ala Ala Ala Leu Ala Ser Glu Asn Lys Ala Leu Ser His
 385 390 395 400
 Pro His Ser Val Asp Ser Leu Pro Thr Ser Ala Asn Gln Glu Asp His
 405 410 415
 Val Ser Met Ala Pro Ala Ala Gly Lys Arg Leu Trp Glu Met Ala Glu
 420 425 430
 Asn Thr Arg Gly Val Pro Ala Ile Glu Trp Leu Gly Ala Cys Gln Gly
 435 440 445
 Leu Asp Leu Arg Lys Gly Leu Lys Thr Ser Ala Lys Leu Glu Lys Ala
 450 455 460
 Arg Gln Ala Leu Arg Ser Glu Val Ala His Tyr Asp Arg Asp Arg Phe
 465 470 475 480

099745 0704
 102420 542E3B50

Phe Ala Pro Asp Ile Glu Lys Ala Val Glu Leu Leu Ala Lys Gly Ser
 485 490 495

Leu Thr Gly Leu Leu Pro Ala Gly Val Leu Pro Ser Leu
 500 505

<210> 35

<211> 511

<212> PRT

<213> *Rhizobium meliloti*

<400> 35

Met Thr Val Ile Leu Arg Pro Gly Ser Val Pro Leu Ser Asp Leu Glu
 1 5 10 15

Thr Ile Tyr Trp Thr Gly Ala Pro Ala Arg Leu Asp Ala Ala Phe Asp
 20 25 30

Ala Gly Ile Ala Lys Ala Ala Ala Arg Ile Ala Glu Ile Val Ala Gly
 35 40 45

Asn Ala Pro Val Tyr Gly Ile Asn Thr Gly Phe Gly Lys Leu Ala Ser
 50 55 60

Ile Lys Ile Asp Ser Ser Asp Val Ala Thr Leu Gln Arg Asn Leu Ile
 65 70 75 80

Leu Ser His Cys Cys Gly Val Gly Gln Pro Leu Thr Glu Asp Ile Val
 85 90 95

Arg Leu Ile Met Ala Leu Lys Leu Ile Ser Leu Gly Arg Gly Ala Ser
 100 105 110

Gly Val Arg Leu Glu Leu Val Arg Leu Ile Glu Ala Met Leu Asp Lys
 115 120 125

Gly Val Ile Pro Leu Ile Pro Glu Lys Gly Ser Val Gly Ala Ser Gly
 130 135 140

Asp Leu Ala Pro Leu Ala His Met Ala Ala Val Met Met Gly His Gly
 145 150 155 160

Glu Ala Phe Phe Ala Gly Glu Arg Met Lys Gly Asp Ala Ala Leu Lys
 165 170 175

Ala Ala Gly Leu Ser Pro Val Thr Leu Ala Ala Lys Glu Gly Leu Ala
 180 185 190

Leu Ile Asn Gly Thr Gln Val Ser Thr Ala Leu Ala Leu Ala Gly Leu
 195 200 205

Phe Arg Ala His Arg Ala Gly Gln Ala Ala Leu Ile Thr Gly Ala Leu
 210 215 220

Ser Thr Asp Ala Ala Met Gly Ser Ser Ala Pro Phe His Pro Asp Ile
 225 230 235 240

0933440301

Gln His Cys Ala Ala Ile Arg Ala Arg Ser Thr Arg Ala Ala Ala Leu
 245 250 255
 Arg Gln Leu Leu Thr Gly Ser Pro Ile Arg Gln Ser His Ile Glu Gly
 260 265 270
 Asp Glu Arg Val Gln Asp Pro Tyr Cys Ile Arg Cys Gln Pro Gln Val
 275 280 285
 Asp Gly Ala Cys Leu Asp Leu Leu Arg Ser Val Ala Ala Thr Leu Thr
 290 295 300
 Ile Glu Ala Asn Ala Val Thr Asp Asn Pro Leu Val Leu Ser Asp Asn
 305 310 315 320
 Ser Val Val Ser Gly Gly Asn Phe His Ala Glu Pro Val Ala Phe Ala
 325 330 335
 Ala Asp Gln Ile Ala Leu Ala Val Cys Glu Ile Gly Ala Ile Ser Gln
 340 345 350
 Arg Arg Ile Ala Leu Leu Val Asp Pro Ala Leu Ser Leu Arg Leu Pro
 355 360 365
 Ala Phe Leu Ala Lys Lys Pro Gly Leu Asn Ser Gly Leu Met Ile Ala
 370 375 380
 Glu Val Thr Ser Ala Ala Leu Met Ser Glu Asn Lys Gln Leu Ser His
 385 390 395 400
 Pro Ala Ser Val Asp Ser Thr Pro Thr Ser Ala Asn Gln Glu Asp His
 405 410 415
 Val Ser Met Ala Cys His Gly Ala Arg Arg Leu Leu Gln Met Thr Glu
 420 425 430
 Asn Leu Phe Ser Ile Ile Gly Ile Glu Ala Leu Ala Ala Val Gln Gly
 435 440 445
 Ile Glu Phe Arg Ala Pro Leu Thr Thr Ser Pro Glu Leu Gln Lys Ala
 450 455 460
 Ala Ala Ala Val Arg Gly Val Ser Ser Ser Ile Glu Glu Asp Arg Tyr
 465 470 475 480
 Met Ala Asp Asp Leu Lys Ala Ala Gly Asp Leu Val Ala Ser Gly Arg
 485 490 495
 Leu Ala Ala Ala Val Ser Ala Gly Ile Leu Pro Lys Leu Glu Asn
 500 505 510

<210> 36
 <211> 657
 <212> PRT
 <213> Mus sp.

00340660

<400> 36

Met Pro Arg Tyr Thr Val His Val Arg Gly Glu Trp Leu Ala Val Pro
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Cys Gln Asp Gly Lys Leu Thr Val Gly Trp Leu Gly Arg Glu Ala Val
 20 25 30

Arg Arg Tyr Met Lys Asn Lys Pro Asp Asn Gly Gly Phe Thr Ser Val
 35 40 45

Asp Glu Val Gln Phe Leu Val His Arg Cys Lys Gly Leu Gly Leu Leu
 50 55 60

Asp Asn Glu Asp Glu Leu Glu Val Ala Leu Glu Asp Asn Glu Phe Val
 65 70 75 80

Glu Val Val Ile Glu Gly Asp Val Met Ser Pro Asp Phe Ile Pro Ser
 85 90 95

Gln Pro Glu Gly Val Phe Leu Tyr Ser Lys Tyr Arg Glu Pro Glu Lys
 100 105 110

Tyr Ile Ala Leu Asp Gly Asp Ser Leu Ser Thr Glu Asp Leu Val Asn
 115 120 125

Leu Gly Lys Gly Arg Tyr Lys Ile Lys Leu Thr Ser Ile Ala Glu Lys
 130 135 140

Lys Val Gln Gln Ser Arg Glu Val Ile Asp Ser Ile Ile Lys Glu Arg
 145 150 155 160

Thr Val Val Tyr Gly Ile Thr Thr Gly Phe Gly Lys Phe Ala Arg Thr
 165 170 175

Val Ile Pro Ala Asn Lys Leu Gln Glu Leu Gln Val Asn Leu Val Arg
 180 185 190

Ser His Ser Ser Gly Val Gly Lys Pro Leu Ser Pro Glu Arg Cys Arg
 195 200 205

Met Leu Leu Ala Leu Arg Ile Asn Val Leu Ala Lys Gly Tyr Ser Gly
 210 215 220

Ile Ser Leu Glu Thr Leu Lys Gln Val Ile Glu Ala Phe Asn Ala Ser
 225 230 235 240

Cys Leu Ser Tyr Val Pro Glu Lys Gly Thr Val Gly Ala Ser Gly Asp
 245 250 255

Leu Ala Pro Leu Ser His Leu Ala Leu Gly Leu Ile Gly Glu Gly Lys
 260 265 270

Met Trp Ser Pro Lys Ser Gly Trp Ala Asp Ala Lys Tyr Val Leu Glu
 275 280 285

Ala His Gly Leu Lys Pro Ile Val Leu Lys Pro Lys Glu Gly Leu Ala
 290 295 300

PDB CODE "5H2EE" 400

Leu	Ile	Asn	Gly	Thr	Gln	Met	Ile	Thr	Ser	Leu	Gly	Cys	Glu	Ala	Leu
305					310					315					320
Glu	Arg	Ala	Ser	Ala	Ile	Ala	Arg	Gln	Ala	Asp	Ile	Val	Ala	Ala	Leu
				325					330					335	
Thr	Leu	Glu	Val	Leu	Lys	Gly	Thr	Thr	Lys	Ala	Phe	Asp	Thr	Asp	Ile
			340					345					350		
His	Ala	Val	Arg	Pro	His	Arg	Gly	Gln	Ile	Glu	Val	Ala	Phe	Arg	Phe
		355					360					365			
Arg	Ser	Leu	Leu	Asp	Ser	Asp	His	His	Pro	Ser	Glu	Ile	Ala	Glu	Ser
	370					375					380				
His	Arg	Phe	Cys	Asp	Arg	Val	Gln	Asp	Ala	Tyr	Thr	Leu	Arg	Cys	Cys
385					390					395					400
Pro	Gln	Val	His	Gly	Val	Val	Asn	Asp	Thr	Ile	Ala	Phe	Val	Lys	Asp
				405					410					415	
Ile	Ile	Thr	Thr	Glu	Leu	Asn	Ser	Ala	Thr	Asp	Asn	Pro	Met	Val	Phe
			420					425					430		
Ala	Ser	Arg	Gly	Glu	Thr	Ile	Ser	Gly	Gly	Asn	Phe	His	Gly	Glu	Tyr
		435					440					445			
Pro	Ala	Lys	Ala	Leu	Asp	Tyr	Leu	Ala	Ile	Gly	Val	His	Glu	Leu	Ala
	450					455					460				
Ala	Ile	Ser	Glu	Arg	Arg	Ile	Glu	Arg	Leu	Cys	Asn	Pro	Ser	Leu	Ser
465					470					475					480
Glu	Leu	Pro	Ala	Phe	Leu	Val	Ala	Glu	Gly	Gly	Leu	Asn	Ser	Gly	Phe
				485					490					495	
Met	Ile	Ala	His	Cys	Thr	Ala	Ala	Ala	Leu	Val	Ser	Glu	Ser	Lys	Ala
			500					505					510		
Leu	Cys	His	Pro	Ser	Ser	Val	Asp	Ser	Leu	Ser	Thr	Ser	Ala	Ala	Thr
		515					520					525			
Glu	Asp	His	Val	Ser	Met	Gly	Gly	Trp	Ala	Ala	Arg	Lys	Ala	Leu	Arg
	530					535					540				
Val	Val	Glu	His	Val	Glu	Gln	Val	Leu	Ala	Ile	Glu	Leu	Leu	Ala	Ala
545					550					555					560
Cys	Gln	Gly	Ile	Glu	Phe	Leu	Arg	Pro	Leu	Lys	Thr	Thr	Thr	Pro	Leu
				565					570					575	
Glu	Lys	Val	Tyr	Asp	Leu	Val	Arg	Ser	Val	Val	Arg	Pro	Trp	Ile	Lys
			580					585					590		
Asp	Arg	Phe	Met	Ala	Pro	Asp	Ile	Glu	Ala	Ala	His	Arg	Leu	Leu	Leu
		595					600					605			

Ser His Ser Ser Gly Val Gly Lys Pro Leu Ser Pro Glu Arg Cys Arg
195 200 205

Met 210	Leu	Leu	Ala	Leu	Arg	Ile 215	Asn	Val	Leu	Ala	Lys 220	Gly	Tyr	Ser	Gly
Ile 225	Ser	Leu	Glu	Thr	Leu 230	Lys	Gln	Val	Ile	Glu 235	Val	Phe	Asn	Ala	Ser 240
Cys	Leu	Ser	Tyr	Val 245	Pro	Glu	Lys	Gly	Thr 250	Val	Gly	Ala	Ser	Gly 255	Asp
Leu	Ala	Pro	Leu 260	Ser	His	Leu	Ala	Leu 265	Gly	Leu	Ile	Gly	Glu 270	Gly	Lys
Met	Trp	Ser 275	Pro	Lys	Ser	Gly	Trp 280	Ala	Asp	Ala	Lys	Tyr 285	Val	Leu	Glu
Ala 290	His	Gly	Leu	Lys	Pro	Ile 295	Val	Leu	Lys	Pro	Lys 300	Glu	Gly	Leu	Ala
Leu 305	Ile	Asn	Gly	Thr	Gln 310	Met	Ile	Thr	Ser	Leu 315	Gly	Cys	Glu	Ala	Val 320
Glu	Arg	Ala	Ser	Ala 325	Ile	Ala	Arg	Gln	Ala 330	Asp	Ile	Val	Ala	Ala 335	Leu
Thr	Leu	Glu	Val 340	Leu	Lys	Gly	Thr	Thr 345	Lys	Ala	Phe	Asp	Thr 350	Asp	Ile
His	Ala	Val 355	Arg	Pro	His	Arg	Gly 360	Gln	Ile	Glu	Val	Ala 365	Phe	Arg	Phe
Arg	Ser 370	Leu	Leu	Asp	Ser	Asp 375	His	His	Pro	Ser	Glu 380	Ile	Ala	Glu	Ser
His 385	Arg	Phe	Cys	Asp	Arg 390	Val	Gln	Asp	Ala	Tyr 395	Thr	Leu	Arg	Cys	Cys 400
Pro	Gln	Val	His	Gly 405	Val	Val	Asn	Asp	Thr 410	Ile	Ala	Phe	Val	Lys 415	Asp
Ile	Ile	Thr	Thr 420	Glu	Leu	Asn	Ser	Ala 425	Thr	Asp	Asn	Pro	Met 430	Val	Phe
Ala	Ser 435	Arg	Gly	Glu	Thr	Ile	Ser 440	Gly	Gly	Asn	Phe	His 445	Gly	Glu	Tyr
Pro 450	Ala	Lys	Ala	Leu	Asp	Tyr 455	Leu	Ala	Ile	Gly	Val 460	His	Glu	Leu	Ala
Ala 465	Ile	Ser	Glu	Arg	Arg 470	Ile	Glu	Arg	Leu	Cys 475	Asn	Pro	Ser	Leu	Ser 480
Glu	Leu	Pro	Ala	Phe 485	Leu	Val	Ala	Glu	Gly 490	Gly	Leu	Asn	Ser	Gly 495	Phe
Met	Ile	Ala	His 500	Cys	Thr	Ala	Ala	Ala 505	Leu	Val	Ser	Glu	Ser 510	Lys	Ala

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Leu Cys His Pro Ser Ser Val Asp Ser Leu Ser Thr Ser Ala Ala Thr
   515                               520                       525

Glu Asp His Val Ser Met Gly Gly Trp Ala Ala Arg Lys Ala Leu Arg
   530                               535                       540

Val Ile Glu His Val Glu Gln Val Leu Ala Ile Glu Leu Leu Ala Ala
  545                               550                       555                       560

Cys Gln Gly Ile Glu Phe Leu Arg Pro Leu Lys Thr Thr Thr Pro Leu
      565                               570                       575

Glu Lys Val Tyr Asp Leu Val Arg Ser Val Val Arg Pro Trp Ile Lys
      580                               585                       590

Asp Arg Phe Met Ala Pro Asp Ile Glu Ala Ala His Arg Leu Leu Leu
      595                               600                       605

Asp Gln Lys Val Trp Glu Val Ala Ala Pro Tyr Ile Glu Lys Tyr Arg
    610                               615                       620

Met Glu His Ile Pro Glu Ser Arg Pro Leu Ser Pro Thr Ala Phe Ser
    625                               630                       635                       640

Leu Glu Ser Leu Arg Lys Asn Ser Ala Thr Ile Pro Glu Ser Asp Asp
      645                               650                       655

Leu

<210> 38
<211> 635
<212> PRT
<213> Homo sapiens

<400> 38
Met Pro Arg Tyr Thr Val His Val Arg Gly Glu Trp Leu Ala Val Pro
  1           5           10           15

Cys Gln Asp Ala Gln Leu Thr Val Gly Trp Leu Gly Arg Glu Ala Val
      20           25           30

Arg Arg Tyr Ile Lys Asn Lys Pro Asp Asn Gly Gly Phe Thr Ser Val
      35           40           45

Asp Asp Ala His Phe Leu Val Arg Arg Cys Lys Gly Leu Gly Leu Leu
      50           55           60

Asp Asn Glu Asp Arg Leu Glu Val Ala Leu Glu Asn Asn Glu Phe Val
      65           70           75           80

Glu Val Val Ile Glu Gly Asp Ala Met Ser Pro Asp Phe Ile Pro Ser
      85           90           95

Gln Pro Glu Gly Val Tyr Leu Tyr Ser Lys Tyr Arg Glu Pro Glu Lys
     100          105          110

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Tyr	Ile	Glu	Leu	Asp	Gly	Asp	Arg	Leu	Thr	Thr	Glu	Asp	Leu	Val	Asn
		115				120						125			
Leu	Gly	Lys	Gly	Arg	Tyr	Lys	Ile	Lys	Leu	Thr	Pro	Thr	Ala	Glu	Lys
		130				135						140			
Arg	Val	Gln	Lys	Ser	Arg	Glu	Val	Ile	Asp	Ser	Ile	Ile	Lys	Glu	Lys
145				150						155				160	
Thr	Val	Val	Tyr	Gly	Ile	Thr	Thr	Gly	Phe	Gly	Lys	Phe	Ala	Arg	Thr
				165				170						175	
Val	Ile	Pro	Ile	Asn	Lys	Leu	Gln	Glu	Leu	Gln	Val	Asn	Leu	Val	Arg
		180						185				190			
Ser	His	Ser	Ser	Gly	Val	Gly	Lys	Pro	Leu	Ser	Pro	Glu	Arg	Cys	Arg
		195				200						205			
Met	Leu	Leu	Ala	Leu	Arg	Ile	Asn	Val	Leu	Ala	Lys	Gly	Tyr	Ser	Gly
210						215						220			
Ile	Ser	Leu	Glu	Thr	Leu	Lys	Gln	Val	Ile	Glu	Met	Phe	Asn	Ala	Ser
225				230						235				240	
Cys	Leu	Pro	Tyr	Val	Pro	Glu	Lys	Gly	Thr	Val	Gly	Ala	Ser	Gly	Asp
				245				250						255	
Leu	Ala	Pro	Leu	Ser	His	Leu	Ala	Leu	Gly	Leu	Val	Gly	Glu	Gly	Lys
		260						265				270			
Met	Trp	Ser	Pro	Lys	Ser	Gly	Trp	Ala	Asp	Ala	Lys	Tyr	Val	Leu	Glu
		275				280						285			
Ala	His	Gly	Leu	Lys	Pro	Val	Ile	Leu	Lys	Pro	Lys	Glu	Gly	Leu	Ala
290						295						300			
Leu	Ile	Asn	Gly	Thr	Gln	Met	Ile	Thr	Ser	Leu	Gly	Cys	Glu	Ala	Val
305				310						315				320	
Glu	Arg	Ala	Ser	Ala	Ile	Ala	Arg	Gln	Ala	Asp	Ile	Val	Ala	Ala	Leu
				325				330						335	
Thr	Leu	Glu	Val	Leu	Lys	Gly	Thr	Thr	Lys	Ala	Phe	Asp	Thr	Asp	Ile
		340						345				350			
His	Ala	Leu	Arg	Pro	His	Arg	Gly	Gln	Ile	Glu	Val	Ala	Phe	Arg	Phe
		355				360						365			
Arg	Ser	Leu	Leu	Asp	Ser	Leu	Arg	Cys	Cys	Pro	Gln	Val	His	Gly	Val
370						375						380			
Val	Asn	Asp	Thr	Ile	Ala	Phe	Val	Lys	Asn	Ile	Ile	Thr	Thr	Glu	Leu
385				390						395				400	
Asn	Ser	Ala	Thr	Asp	Asn	Pro	Met	Val	Phe	Ala	Asn	Arg	Gly	Glu	Thr
				405				410						415	

Val Ser Gly Gly Asn Phe His Gly Glu Tyr Pro Ala Lys Ala Leu Asp
420 425 430

Tyr Leu Ala Ile Gly Ile His Glu Leu Ala Ala Ile Ser Glu Arg Arg
435 440 445

Ile Glu Arg Leu Cys Asn Pro Ser Leu Ser Glu Leu Pro Ala Phe Leu
450 455 460

Val Ala Glu Gly Gly Leu Asn Ser Gly Phe Met Ile Ala His Cys Thr
465 470 475 480

Ala Ala Ala Leu Val Ser Glu Asn Lys Ala Leu Cys His Pro Ser Ser
485 490 495

Val Asp Ser Leu Ser Thr Ser Ala Ala Thr Glu Asp His Val Ser Met
500 505 510

Gly Gly Trp Ala Ala Arg Lys Ala Leu Arg Val Ile Glu His Val Glu
515 520 525

Gln Val Leu Ala Ile Glu Leu Leu Ala Ala Cys Gln Gly Ile Glu Phe
530 535 540

Leu Arg Pro Leu Lys Thr Thr Thr Pro Leu Glu Lys Val Tyr Asp Leu
545 550 555 560

Val Arg Ser Val Val Arg Pro Trp Ile Lys Asp Arg Phe Met Ala Pro
565 570 575

Asp Ile Glu Ala Ala His Arg Leu Leu Leu Glu Gln Lys Val Trp Glu
580 585 590

Val Ala Ala Pro Tyr Ile Glu Lys Tyr Arg Met Glu His Ile Pro Glu
595 600 605

Ser Arg Pro Leu Ser Pro Thr Ala Phe Ser Leu Gln Phe Leu His Lys
610 615 620

Lys Ser Thr Lys Ile Pro Glu Ser Glu Asp Leu
625 630 635

<210> 39

<211> 677

<212> PRT

<213> Caenorhabditis elegans

<400> 39

Met Arg Leu Gln Val Gln Ile Gly Thr Glu Cys Val Val Val Pro Cys
1 5 10 15

Lys Pro Asp Asp Thr Ile His Ala Val Ala Lys Lys Ser Val Glu Lys
20 25 30

Leu Arg Arg Leu Arg Pro Lys Leu Pro Leu Ala Asp Asp Tyr Phe Glu
35 40 45

Val Arg Arg Thr Val Gly Asn Ser Leu Leu Asp Pro Glu Asp Leu Val
 50 55 60
 Ser Asp Val Leu Lys Asp Ser Asp Phe Ile Ile Val Ala Ala Ser Val
 65 70 75 80
 Glu Glu Thr Glu Asp Ala Lys Glu Ala Lys Lys Gln Glu Glu Ile Asp
 85 90 95
 Asn Ala Arg Ala Glu Ile Glu Lys Ile Asp Asn Arg Arg Arg Lys Val
 100 105 110
 Ser Phe Ala Asp Ser Leu Ala Pro Met Val Leu Ala Pro Pro Thr Lys
 115 120 125
 Leu Leu Ile Leu Asp Gly Asn Ser Leu Leu Pro Glu Asp Leu Val Arg
 130 135 140
 Cys Glu Lys Gly Glu Cys Ala Ile Gln Leu Ser Met Glu Ser Glu Asp
 145 150 155 160
 Arg Ile Arg Lys Ala Arg Thr Phe Leu Glu Lys Ile Ala Ser Glu His
 165 170 175
 Arg Ala Val Tyr Gly Val Thr Thr Gly Phe Gly Thr Phe Ser Asn Val
 180 185 190
 Thr Ile Pro Pro Glu Lys Leu Lys Lys Leu Gln Leu Asn Leu Ile Arg
 195 200 205
 Ser His Ala Thr Gly Tyr Gly Glu Pro Leu Ala Pro Asn Arg Ala Arg
 210 215 220
 Met Leu Leu Ala Leu Arg Ile Asn Ile Leu Ala Lys Gly His Ser Gly
 225 230 235 240
 Ile Ser Val Glu Asn Ile Lys Lys Met Ile Ala Ala Phe Asn Ala Phe
 245 250 255
 Cys Val Ser Tyr Val Pro Gln Gln Gly Thr Val Gly Cys Ser Gly Asp
 260 265 270
 Leu Cys Pro Leu Ala His Leu Ala Leu Gly Leu Leu Gly Glu Gly Lys
 275 280 285
 Met Trp Ser Pro Thr Thr Gly Trp Gln Pro Ala Asp Val Val Leu Lys
 290 295 300
 Lys Asn Asn Leu Glu Pro Leu Glu Leu Gly Pro Lys Glu Gly Leu Ala
 305 310 315 320
 Leu Ile Asn Gly Thr Gln Met Val Thr Ala Leu Gly Ala Tyr Thr Leu
 325 330 335
 Glu Arg Ala His Asn Ile Ala Arg Gln Ala Asp Val Ile Ala Ala Leu
 340 345 350

403420 "G4FE60"

Ser	Leu	Asp	Val	Leu	Lys	Gly	Thr	Thr	Arg	Ala	Tyr	Asp	Pro	Asp	Ile
		355				360						365			
His	Arg	Ile	Arg	Pro	His	Arg	Gly	Gln	Asn	Leu	Ser	Ala	Leu	Arg	Leu
		370				375				380					
Arg	Ala	Leu	Leu	His	Ser	Glu	Ala	Asn	Pro	Ser	Gln	Ile	Ala	Glu	Ser
385				390						395				400	
His	Arg	Asn	Cys	Thr	Lys	Val	Gln	Asp	Ala	Tyr	Thr	Leu	Arg	Cys	Val
				405				410						415	
Pro	Gln	Val	His	Gly	Val	Val	His	Asp	Thr	Ile	Glu	Phe	Val	Arg	Glu
		420						425				430			
Ile	Ile	Thr	Thr	Glu	Met	Asn	Ser	Ala	Thr	Asp	Asn	Pro	Leu	Val	Phe
		435				440						445			
Ala	Asp	Arg	Glu	Glu	Ile	Ile	Ser	Gly	Gly	Asn	Phe	His	Gly	Glu	Tyr
450						455				460					
Pro	Ala	Lys	Ala	Leu	Asp	Phe	Leu	Ala	Ile	Ala	Val	Ala	Glu	Leu	Ala
465				470						475				480	
Gln	Met	Ser	Glu	Arg	Arg	Leu	Glu	Arg	Leu	Val	Asn	Lys	Glu	Leu	Ser
				485				490						495	
Gly	Leu	Pro	Thr	Glu	Leu	Thr	Pro	Asp	Gly	Gly	Leu	Asn	Ser	Gly	Phe
		500						505				510			
Met	Thr	Val	Gln	Leu	Cys	Ala	Ala	Ser	Leu	Val	Ser	Glu	Asn	Lys	Val
		515				520						525			
Leu	Cys	His	Pro	Ser	Ser	Val	Asp	Ser	Ile	Pro	Thr	Ser	Cys	Asn	Gln
530						535				540					
Glu	Asp	His	Val	Ser	Met	Gly	Gly	Phe	Ala	Ala	Arg	Lys	Ala	Leu	Thr
545				550						555				560	
Val	Val	Glu	His	Val	Glu	Ala	Val	Leu	Ala	Met	Glu	Leu	Leu	Ala	Ala
				565				570						575	
Cys	Gln	Gly	Ile	Glu	Phe	Leu	Lys	Pro	Leu	Ile	Ser	Thr	Ala	Pro	Leu
		580						585				590			
His	Lys	Ile	Tyr	Gln	Leu	Val	Arg	Ser	Val	Ala	Pro	Pro	Leu	Asn	Glu
		595				600						605			
Asp	Arg	Tyr	Met	Lys	Pro	Glu	Ile	Asp	Ala	Val	Leu	Glu	Met	Ile	Arg
610						615				620					
Glu	Asn	Arg	Ile	Trp	Glu	Ala	Val	Leu	Pro	His	Leu	Glu	Thr	Leu	Glu
625				630						635				640	
Ala	Met	Glu	Glu	Leu	Asp	Pro	Asp	Ala	Leu	Arg	Gln	Phe	Thr	Lys	Thr
				645				650						655	

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<400> 40
Met Val Thr Leu Asp Gly Ser Ser Leu Thr Thr Ala Asp Val Ala Arg
  1              5              10              15

Val Leu Phe Asp Phe Glu Glu Ala Ala Ala Ser Glu Glu Ser Met Glu
      20              25              30

Arg Val Lys Lys Ser Arg Ala Ala Val Glu Arg Ile Val Arg Asp Glu
      35              40              45

Lys Thr Ile Tyr Gly Ile Asn Thr Gly Phe Gly Lys Phe Ser Asp Val
  50              55              60

Leu Ile Gln Lys Glu Asp Ser Ala Ala Leu Gln Leu Asn Leu Ile Leu
  65              70              75              80

Ser His Ala Cys Gly Val Gly Asp Pro Phe Pro Glu Cys Val Ser Arg
      85              90              95

Ala Met Leu Leu Leu Arg Ala Asn Ala Leu Leu Lys Gly Phe Ser Gly
      100              105              110

Val Arg Ala Glu Leu Ile Glu Gln Leu Leu Ala Phe Leu Asn Lys Arg
      115              120              125

Val His Pro Val Ile Pro Gln Gln Gly Ser Leu Gly Ala Ser Gly Asp
      130              135              140

Leu Ala Pro Leu Ser His Leu Ala Leu Ala Leu Ile Gly Gln Gly Glu
      145              150              155              160

Val Phe Phe Glu Gly Glu Arg Met Pro Ala Met Thr Gly Leu Lys Lys
      165              170              175

Ala Gly Ile Gln Pro Val Thr Leu Thr Ser Lys Glu Gly Leu Ala Leu
      180              185              190

Ile Asn Gly Thr Gln Ala Met Thr Ala Met Gly Val Val Ala Tyr Ile
      195              200              205

Glu Ala Glu Lys Leu Ala Tyr Gln Thr Glu Arg Ile Ala Ser Leu Thr
      210              215              220

Ile Glu Gly Leu Gln Gly Ile Ile Asp Ala Phe Asp Glu Asp Ile His
      225              230              235              240

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<210> 41
<211> 516
<212> PRT
<213> Streptomyces griseus
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Met	Asp	Met	His	Thr	Val	Val	Val	Val	Thr	Ser	Gly	Thr	Thr	Ala	Glu
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Asp	Val	Val	Ala	Val	Ala	Arg	His	Gly	Ala	Arg	Val	Glu	Leu	Ser	Ala
			20					25					30		
Ala	Ala	Val	Glu	Ala	Leu	Ala	Ala	Ala	Arg	Leu	Ile	Val	Asp	Ala	Leu
		35						40				45			
Ala	Ala	Lys	Pro	Glu	Pro	Val	Tyr	Gly	Val	Ser	Thr	Gly	Phe	Gly	Ala
		50				55					60				
Leu	Ala	Ser	Arg	His	Ile	Gly	Thr	Glu	Leu	Arg	Ala	Gln	Leu	Gln	Arg
					70					75					80
Asn	Ile	Val	Arg	Ser	His	Ala	Ala	Gly	Met	Gly	Pro	Arg	Val	Glu	Arg
				85					90					95	
Glu	Val	Val	Arg	Ala	Leu	Met	Phe	Leu	Arg	Leu	Lys	Thr	Val	Ala	Ser
			100					105					110		
Gly	His	Thr	Gly	Val	Arg	Pro	Glu	Val	Ala	Gln	Thr	Met	Ala	Asp	Val
		115					120					125			
Leu	Asn	Ala	Gly	Ile	Thr	Pro	Val	Val	His	Glu	Tyr	Gly	Ser	Leu	Gly
		130				135					140				
Cys	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ser	His	Cys	Ala	Leu	Thr	Leu	Met
145					150					155					160
Gly	Glu	Gly	Glu	Ala	Glu	Gly	Pro	Asp	Gly	Thr	Val	Arg	Pro	Ala	Gly
				165					170					175	
Glu	Leu	Leu	Ala	Ala	His	Gly	Ile	Ala	Pro	Val	Glu	Leu	Arg	Glu	Lys
			180					185					190		
Glu	Gly	Leu	Ala	Leu	Leu	Asn	Gly	Thr	Asp	Gly	Met	Leu	Gly	Met	Leu
		195					200					205			
Val	Met	Ala	Leu	Ala	Asp	Leu	Arg	Asn	Leu	Tyr	Thr	Ser	Ala	Asp	Ile
		210				215					220				
Thr	Ala	Ala	Leu	Ser	Leu	Glu	Ala	Leu	Leu	Gly	Thr	Asp	Lys	Val	Leu
225					230					235					240
Ala	Pro	Glu	Leu	His	Ala	Ile	Arg	Pro	His	Pro	Gly	Gln	Gly	Val	Ser
				245					250					255	
Ala	Asp	Asn	Met	Ser	Arg	Val	Leu	Ala	Gly	Ser	Gly	Leu	Thr	Gly	His
			260					265					270		
His	Gln	Asp	Asp	Ala	Pro	Arg	Val	Gln	Asp	Ala	Tyr	Ser	Val	Arg	Cys
		275					280					285			
Ala	Pro	Gln	Val	Asn	Gly	Ala	Gly	Arg	Asp	Thr	Leu	Asp	His	Ala	Ala
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<400> 42
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Asp  Asp  Val  Ile  Ala  Val  Ala  Arg  His  Glu  Ala  Arg  Ile  Ser  Ile  Ser
          20              25              30

Pro  Gln  Val  Leu  Glu  Glu  Leu  Ala  Ser  Val  Arg  Ala  His  Ile  Asp  Ala
          35              40              45

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Leu	Ala	Ser	Ala	Asp	Thr	Pro	Val	Tyr	Gly	Ile	Ser	Thr	Gly	Phe	Gly
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Ala	Leu	Ala	Thr	Arg	His	Ile	Ala	Pro	Glu	Asp	Arg	Ala	Lys	Leu	Gln
65					70					75					80
Arg	Ser	Leu	Ile	Arg	Ser	His	Ala	Ala	Gly	Met	Gly	Glu	Pro	Val	Glu
				85					90					95	
Arg	Glu	Val	Val	Arg	Ala	Leu	Met	Phe	Leu	Arg	Ala	Lys	Thr	Leu	Ala
			100					105					110		
Ser	Gly	Arg	Ser	Val	Arg	Pro	Val	Val	Leu	Glu	Thr	Met	Val	Gly	Met
		115				120						125			
Leu	Asn	Ala	Gly	Ile	Thr	Pro	Val	Val	Arg	Glu	Tyr	Gly	Ser	Leu	Gly
130						135					140				
Cys	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ser	His	Cys	Ala	Leu	Val	Leu	Met
145					150					155					160
Gly	Glu	Gly	Glu	Ala	Thr	Asp	Ala	His	Gly	Asp	Ile	Arg	Pro	Val	Pro
				165					170					175	
Glu	Leu	Phe	Ala	Glu	Ala	Gly	Leu	Thr	Pro	Val	Glu	Leu	Ala	Glu	Lys
			180					185					190		
Glu	Gly	Leu	Ala	Leu	Val	Asn	Gly	Thr	Asp	Gly	Met	Leu	Gly	Gln	Leu
		195					200					205			
Ile	Met	Ala	Leu	Ala	Asp	Leu	Asp	Glu	Leu	Leu	Asp	Ile	Ala	Asp	Ala
	210					215					220				
Thr	Ala	Ala	Met	Ser	Val	Glu	Ala	Gln	Leu	Gly	Thr	Asp	Gln	Val	Phe
225					230					235					240
Arg	Ala	Glu	Leu	His	Glu	Pro	Leu	Arg	Pro	His	Pro	Gly	Gln	Gly	Arg
				245					250					255	
Ser	Ala	Gln	Asn	Met	Phe	Ala	Phe	Leu	Ala	Asp	Ser	Pro	Ile	Val	Ala
			260					265					270		
Ser	His	Arg	Glu	Gly	Asp	Gly	Arg	Val	Gln	Asp	Ala	Tyr	Ser	Leu	Arg
		275					280					285			
Cys	Ser	Pro	Gln	Val	Thr	Gly	Ala	Ala	Arg	Asp	Thr	Ile	Ala	His	Ala
290						295					300				
Arg	Leu	Val	Ala	Thr	Arg	Glu	Leu	Ala	Ala	Ala	Ile	Asp	Asn	Pro	Val
305					310					315					320
Val	Leu	Pro	Ser	Gly	Glu	Val	Thr	Ser	Asn	Gly	Asn	Phe	His	Gly	Ala
				325					330					335	
Pro	Val	Ala	Tyr	Val	Leu	Asp	Phe	Leu	Ala	Ile	Ala	Val	Ala	Asp	Leu
			340					345					350		

Gly Ser Ile Ala Glu Arg Arg Thr Asp Arg Met Leu Asp Pro Ala Arg
355 360 365

Ser Arg Asp Leu Pro Ala Phe Leu Ala Asp Asp Pro Gly Val Asp Ser
370 375 380

Gly Met Met Ile Ala Gln Tyr Thr Gln Ala Gly Leu Val Ala Glu Asn
385 390 395 400

Lys Arg Leu Ala Val Pro Ala Val Asp Ser Ile Pro Ser Ser Ala Met
405 410 415

Gln Glu Asp His Val Ser Leu Gly Trp His Ala Ala Arg Lys Leu Pro
420 425 430

Thr Ser Val Ala Asn Leu Arg Arg Ile Leu Ala Val Glu Met Leu Ile
435 440 445

Ala Gly Arg Ala Leu Asp Leu Arg Ala Pro Leu Lys Pro Gly Pro Ala
450 455 460

Thr Gly Ala Val Leu Glu Val Leu Arg Ser Lys Val Ala Gly Pro Gly
465 470 475 480

Gln Asp Arg Phe Leu Ser Ala Glu Leu Glu Ala Ala Tyr Asp Leu Leu
485 490 495

Ala Asn Gly Ser Val His Lys Ala Leu Glu Ala His Leu Pro Glu
500 505 510

<210> 43

<211> 513

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: 983831/HAL

<400> 43

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20 25 30

Pro Gln Val Leu Glu Glu Leu Ala Ser Val Arg Ala His Ile Asp Ala
35 40 45

Leu Ala Ser Ala Asp Thr Pro Val Tyr Gly Ile Ser Thr Gly Phe Gly
50 55 60

Ala Leu Ala Thr Arg His Ile Ala Pro Glu Asp Arg Ala Lys Leu Gln
65 70 75 80

Arg Ser Leu Ile Arg Ser His Ala Ala Gly Met Gly Glu Pro Val Glu
85 90 95

Arg	Glu	Val	Val	Arg	Ala	Leu	Met	Phe	Leu	Arg	Ala	Lys	Thr	Leu	Ala	
			100				105						110			
Ser	Gly	Arg	Thr	Gly	Val	Arg	Pro	Val	Val	Leu	Glu	Thr	Met	Val	Gly	
			115				120				125					
Met	Leu	Asn	Ala	Gly	Ile	Thr	Pro	Val	Val	Arg	Glu	Tyr	Gly	Ser	Leu	
			130				135				140					
Gly	Cys	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ser	His	Cys	Ala	Leu	Val	Leu	
145				150						155			160			
Met	Gly	Glu	Gly	Glu	Ala	Thr	Asp	Ala	His	Gly	Asp	Ile	Arg	Pro	Val	
			165						170			175				
Pro	Glu	Leu	Phe	Ala	Glu	Ala	Gly	Leu	Thr	Pro	Val	Glu	Leu	Ala	Glu	
			180						185			190				
Lys	Glu	Gly	Leu	Ala	Leu	Val	Asn	Gly	Thr	Asp	Gly	Met	Leu	Gly	Gln	
			195			200						205				
Leu	Ile	Met	Ala	Leu	Ala	Asp	Leu	Asp	Glu	Leu	Leu	Asp	Ile	Ala	Asp	
			210			215						220				
Ala	Thr	Ala	Ala	Met	Ser	Val	Glu	Ala	Gln	Leu	Gly	Thr	Asp	Gln	Val	
225				230						235			240			
Phe	Arg	Ala	Glu	Leu	His	Glu	Pro	Leu	Arg	Pro	His	Pro	Gly	Gln	Gly	
			245						250			255				
Arg	Ser	Ala	Gln	Asn	Met	Phe	Ala	Phe	Leu	Ala	Asp	Ser	Pro	Ile	Val	
			260						265			270				
Ala	Ser	His	Arg	Glu	Gly	Asp	Gly	Arg	Val	Gln	Asp	Ala	Tyr	Ser	Leu	
			275			280						285				
Arg	Cys	Ser	Pro	Gln	Val	Thr	Gly	Ala	Ala	Arg	Asp	Thr	Ile	Ala	His	
			290			295						300				
Ala	Arg	Leu	Val	Ala	Thr	Arg	Glu	Leu	Ala	Ala	Ala	Ile	Asp	Asn	Pro	
305				310						315			320			
Val	Val	Leu	Pro	Ser	Gly	Glu	Val	Thr	Ser	Asn	Gly	Asn	Phe	His	Gly	
			325						330			335				
Ala	Pro	Val	Ala	Tyr	Val	Leu	Asp	Phe	Leu	Ala	Ile	Ala	Val	Ala	Asp	
			340			345						350				
Leu	Gly	Ser	Ile	Ala	Glu	Arg	Arg	Thr	Asp	Arg	Met	Leu	Asp	Pro	Ala	
			355			360						365				
Arg	Ser	Arg	Asp	Leu	Pro	Ala	Phe	Leu	Ala	Asp	Asp	Pro	Gly	Val	Asp	
			370			375						380				
Ser	Gly	Met	Met	Ile	Ala	Gln	Tyr	Thr	Gln	Ala	Gly	Leu	Val	Ala	Glu	
385				390						395			400			

Val Leu Asn Ala Gly Ile Thr Pro Val Val His Glu Tyr Gly Ser Leu
130 135 140

Gly	Cys	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ser	His	Cys	Ala	Leu	Thr	Leu	145	150	155	160
Met	Gly	Glu	Gly	Asp	Ala	Glu	Gly	Pro	Asp	Gly	Thr	Val	Arg	Pro	Ala	165	170	175	
Gly	Glu	Leu	Leu	Ala	Ala	His	Gly	Ile	Ala	Pro	Val	Glu	Leu	Arg	Glu	180	185	190	
Lys	Glu	Gly	Leu	Ala	Leu	Leu	Asn	Gly	Thr	Asp	Gly	Met	Leu	Gly	Met	195	200	205	
Leu	Val	Met	Ala	Leu	Ala	Asp	Leu	Asp	Thr	Leu	Tyr	Lys	Ser	Ala	Asp	210	215	220	
Ile	Thr	Ala	Ala	Leu	Thr	Met	Glu	Ala	Leu	Leu	Gly	Thr	Asp	Arg	Val	225	230	235	240
Leu	Ala	Pro	Glu	Leu	His	Ala	Pro	Ile	Arg	Pro	His	Pro	Gly	Gln	Ala	245	250	255	
Ala	Ser	Ala	Ala	Asn	Met	Ala	Ala	Val	Leu	Lys	Gly	Ser	Gly	Leu	Thr	260	265	270	
Gly	His	His	Gln	Asp	Asp	Ala	Pro	Arg	Val	Gln	Asp	Ala	Tyr	Ser	Val	275	280	285	
Arg	Cys	Ala	Pro	Gln	Val	Ala	Gly	Ala	Gly	Arg	Asp	Thr	Met	Ala	His	290	295	300	
Ala	Gly	Leu	Val	Ala	Glu	Arg	Glu	Leu	Ala	Ala	Ala	Val	Asp	Asn	Pro	305	310	315	320
Val	Val	Leu	Pro	Asp	Gly	Arg	Val	Glu	Ser	Asn	Gly	Asn	Phe	His	Gly	325	330	335	
Ala	Pro	Val	Ala	Tyr	Val	Leu	Asp	Phe	Leu	Ala	Val	Ala	Val	Ala	Asp	340	345	350	
Leu	Gly	Ser	Ile	Ala	Glu	Arg	Arg	Thr	Asp	Arg	Leu	Leu	Asp	Lys	Asn	355	360	365	
Arg	Ser	His	Gly	Leu	Pro	Pro	Phe	Leu	Ala	Asp	Asp	Ala	Gly	Val	Asp	370	375	380	
Ser	Gly	Leu	Met	Ile	Ala	Gln	Tyr	Thr	Gln	Ala	Ala	Leu	Val	Gly	Glu	385	390	395	400
Leu	Lys	Arg	Leu	Ala	Val	Pro	Ala	Ser	Ala	Asp	Ser	Ile	Pro	Ser	Ser	405	410	415	
Ala	Met	Gln	Glu	Asp	His	Val	Ser	Met	Gly	Trp	Ser	Ala	Ala	Arg	Lys	420	425	430	
Leu	Arg	Thr	Ala	Val	Asp	Asn	Leu	Ala	Arg	Val	Ile	Ala	Val	Glu	Leu	435	440	445	

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Glu	Asp	Val	Val	Ala	Val	Ala	Arg	His	Gly	Ala	Arg	Val	Glu	Leu	Ser	
			20					25					30			
Ala	Ala	Ala	Val	Glu	Ala	Leu	Ala	Ala	Ala	Arg	Leu	Ile	Val	Asp	Ala	
			35				40					45				
Leu	Ala	Ala	Lys	Pro	Glu	Pro	Val	Tyr	Gly	Val	Ser	Thr	Gly	Phe	Gly	
	50					55					60					
Ala	Leu	Ala	Ser	Arg	His	Ile	Gly	Thr	Glu	Leu	Arg	Ala	Gln	Leu	Gln	
65					70					75					80	
Arg	Asn	Ile	Val	Arg	Ser	His	Ala	Ala	Gly	Met	Gly	Pro	Arg	Val	Glu	
				85					90					95		
Arg	Glu	Val	Val	Arg	Ala	Leu	Met	Phe	Leu	Arg	Leu	Lys	Thr	Val	Ala	
			100					105					110			
Ser	Gly	His	Thr	Gly	Val	Arg	Pro	Glu	Val	Ala	Gln	Thr	Met	Ala	Asp	
		115					120					125				
Val	Leu	Asn	Ala	Gly	Ile	Thr	Pro	Val	Val	His	Glu	Tyr	Gly	Ser	Leu	
	130					135					140					
Gly	Cys	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ser	His	Cys	Ala	Leu	Thr	Leu	
145					150					155					160	
Met	Gly	Glu	Gly	Glu	Ala	Glu	Gly	Pro	Asp	Gly	Thr	Val	Arg	Pro	Ala	
				165					170					175		
Gly	Glu	Leu	Leu	Ala	Ala	His	Gly	Ile	Ala	Pro	Val	Glu	Leu	Arg	Glu	
			180					185					190			

Lys	Glu	Gly	Leu	Ala	Leu	Leu	Asn	Gly	Thr	Asp	Gly	Met	Leu	Gly	Met	
		195					200					205				
Leu	Val	Met	Ala	Leu	Ala	Asp	Leu	Arg	Asn	Leu	Tyr	Thr	Ser	Ala	Asp	
	210					215					220					
Ile	Thr	Ala	Ala	Leu	Ser	Leu	Glu	Ala	Leu	Leu	Gly	Thr	Asp	Lys	Val	
225					230					235					240	
Leu	Ala	Pro	Glu	Leu	His	Ala	Pro	Ile	Arg	Pro	His	Pro	Gly	Gln	Gly	
				245					250					255		
Val	Ser	Ala	Asp	Asn	Met	Ser	Arg	Val	Leu	Ala	Gly	Ser	Gly	Leu	Thr	
			260					265					270			
Gly	His	His	Gln	Asp	Asp	Ala	Pro	Arg	Val	Gln	Asp	Ala	Tyr	Ser	Val	
		275					280					285				
Arg	Cys	Ala	Pro	Gln	Val	Asn	Gly	Ala	Gly	Arg	Asp	Thr	Leu	Asp	His	
	290					295					300					
Ala	Ala	Leu	Val	Ala	Gly	Arg	Glu	Leu	Ala	Ser	Ser	Val	Asp	Asn	Pro	
305					310					315					320	
Val	Val	Leu	Pro	Asp	Gly	Arg	Val	Glu	Ser	Asn	Gly	Asn	Phe	His	Gly	
				325					330					335		
Ala	Pro	Val	Ala	Tyr	Val	Leu	Asp	Phe	Leu	Ala	Ile	Val	Ala	Ala	Asp	
			340					345					350			
Leu	Gly	Ser	Ile	Cys	Glu	Arg	Arg	Thr	Asp	Arg	Leu	Leu	Asp	Lys	Asn	
		355					360					365				
Arg	Ser	His	Gly	Leu	Pro	Pro	Phe	Leu	Ala	Asp	Asp	Ala	Gly	Val	Asp	
	370					375					380					
Ser	Gly	Leu	Met	Ile	Ala	Gln	Tyr	Thr	Gln	Ala	Ala	Leu	Val	Ser	Glu	
385				390						395					400	
Met	Lys	Arg	Leu	Ala	Val	Pro	Ala	Ser	Ala	Asp	Ser	Ile	Pro	Ser	Ser	
				405					410					415		
Ala	Met	Gln	Glu	Asp	His	Val	Ser	Met	Gly	Trp	Ser	Ala	Ala	Arg	Lys	
			420					425					430			
Leu	Arg	Thr	Ala	Val	Asp	Asn	Leu	Ala	Arg	Ile	Val	Ala	Val	Glu	Leu	
		435					440					445				
Tyr	Ala	Ala	Thr	Arg	Ala	Ile	Glu	Leu	Arg	Ala	Ala	Leu	Thr	Pro	Ala	
	450					455					460					
Pro	Ala	Ser	Glu	Ala	Val	Val	Ala	Ala	Leu	Arg	Ala	Ala	Gly	Ala	Gly	
465					470					475					480	
Pro	Gly	Pro	Asp	Arg	Phe	Leu	Ala	Pro	Asp	Leu	Ala	Ala	Ala	Asp	Thr	
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Pro

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<210> 46
<211> 513
<212> PRT
<213> Deinococcus radiodurans
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<400> 46																
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Glu	Gln	Phe	Ile	Ser	Val	Val	Arg	His	Gly	Glu	Gln	Val	Glu	Leu	Ser	
			20					25					30			
Ala	Ala	Ala	Arg	Glu	Arg	Ile	Ala	Arg	Ala	Arg	Thr	Val	Ile	Glu	Gln	
		35					40					45				
Ile	Val	Glu	Gly	Asp	Thr	Pro	Ile	Tyr	Gly	Val	Asn	Thr	Gly	Phe	Gly	
	50					55					60					
Lys	Phe	Glu	Asn	Val	Gln	Ile	Asp	Arg	Ser	Gln	Leu	Ala	Gln	Leu	Gln	
65					70					75					80	
His	Asn	Leu	Ile	Val	Ser	His	Ala	Ile	Gly	Met	Gly	Glu	Pro	Leu	Pro	
				85					90					95		
Ala	Glu	Val	Val	Arg	Gly	Met	Leu	Leu	Leu	Arg	Ala	Gln	Ser	Leu	Ser	
			100					105					110			
Leu	Gly	His	Ser	Gly	Val	Arg	Val	Glu	Val	Val	Glu	Leu	Leu	Leu	Ala	
		115					120					125				
Leu	Leu	Asn	Ala	Asp	Ala	Leu	Pro	Val	Val	Pro	Ser	Gln	Gly	Ser	Val	
	130					135					140					
Gly	Ala	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ala	His	Leu	Ala	Leu	Gly	Leu	
145					150					155					160	
Ile	Gly	Leu	Gly	Asp	Ile	Thr	Glu	Tyr	Gln	Gly	Gln	Val	Arg	Pro	Ala	
				165					170					175		
Ala	Asp	Val	Leu	Ala	Glu	Leu	Gly	Leu	Ser	Pro	Val	Gln	Leu	Gln	Ala	
			180					185					190			
Lys	Glu	Gly	Leu	Ala	Leu	Ile	Asn	Gly	Thr	Gln	Leu	Met	Gly	Ser	Leu	
		195					200					205				
Leu	Ala	Leu	Ala	Leu	His	Asp	Ala	Gln	Val	Leu	Leu	Gly	Thr	Ala	Asn	
	210					215					220					
Leu	Ala	Ala	Ala	Met	Thr	Val	Glu	Ala	Arg	Tyr	Gly	Ser	His	Arg	Pro	
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<210> 47
<211> 513
<212> PRT
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<213> Agrobacterium rhizogenes

<400> 47

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Pro	Ser	Phe	Asp	Ala	Ala	Val	Leu	Lys	Gly	Ala	Ala	Arg	Ile	Ala	Glu	35	40	45	
Ile	Ala	Ala	Gly	Asn	Ala	Pro	Val	Tyr	Gly	Ile	Asn	Thr	Gly	Phe	Gly	50	55	60	
Lys	Leu	Ala	Ser	Ile	Lys	Ile	Asp	Ala	Ala	Asp	Leu	Ala	Thr	Leu	Gln	65	70	75	80
Arg	Asn	Leu	Ile	Leu	Ser	His	Cys	Cys	Gly	Val	Gly	Ala	Pro	Leu	Pro	85	90	95	
Glu	Asn	Val	Val	Arg	Leu	Ile	Met	Ala	Leu	Lys	Leu	Ile	Ser	Leu	Gly	100	105	110	
Arg	Gly	Ala	Ser	Gly	Val	Arg	Ile	Glu	Leu	Ile	Arg	Leu	Ile	Glu	Gly	115	120	125	
Met	Leu	Glu	Lys	Gly	Val	Ile	Pro	Val	Ile	Pro	Glu	Lys	Gly	Ser	Val	130	135	140	
Gly	Ala	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ala	His	Met	Ser	Ala	Thr	Met	145	150	155	160
Met	Gly	Glu	Gly	Glu	Ala	Phe	Asp	Tyr	Gln	Gly	Val	Gln	Met	Pro	Ser	165	170	175	
Lys	Asp	Ala	Leu	Ala	Lys	Ala	Gly	Leu	Ser	Pro	Val	Val	Leu	Ala	Ala	180	185	190	
Lys	Glu	Gly	Leu	Ala	Leu	Ile	Asn	Gly	Thr	Gln	Thr	Ser	Thr	Ala	Leu	195	200	205	
Ala	Leu	Ala	Gly	Leu	Phe	Arg	Ala	His	Arg	Ala	Ala	Gln	Ser	Ala	Leu	210	215	220	
Val	Thr	Gly	Ala	Leu	Ser	Thr	Asp	Ala	Ala	Met	Gly	Ser	Ser	Ala	Pro	225	230	235	240
Phe	His	Pro	Asp	Ile	His	Thr	Pro	Leu	Arg	Gly	His	Lys	Gly	Gln	Ile	245	250	255	
Asp	Ala	Gly	Ser	Ala	Leu	Arg	Asn	Leu	Leu	Gln	Gly	Ser	Glu	Ile	Arg	260	265	270	
Glu	Ser	His	Ile	Glu	Gly	Asp	Glu	Arg	Val	Gln	Asp	Pro	Tyr	Cys	Ile	275	280	285	

0994345-07301

Arg Cys Gln Pro Gln Val Asp Gly Ala Cys Leu Asp Leu Leu Ala Ser
 290 295 300
 Val Ala Arg Thr Leu Glu Ile Glu Ala Asn Ala Val Thr Asp Asn Pro
 305 310 315 320
 Leu Val Leu Ser Asp Asn Ser Val Val Ser Gly Gly Asn Phe His Ala
 325 330 335
 Glu Pro Val Ala Phe Ala Ala Asp Gln Thr Ala Leu Ala Val Cys Glu
 340 345 350
 Ile Gly Ala Ile Ala Gln Arg Arg Ile Ala Leu Leu Val Asp Pro Ala
 355 360 365
 Leu Ser Tyr Gly Leu Pro Ala Phe Leu Ser Lys Lys Pro Gly Leu Asn
 370 375 380
 Ser Gly Leu Met Ile Ala Glu Val Thr Ser Ala Ala Leu Met Ser Glu
 385 390 395 400
 Asn Lys Gln Met Ser His Pro Ala Ser Val Asp Ser Thr Pro Thr Ser
 405 410 415
 Ala Asn Gln Glu Asp His Val Ser Met Ala Cys His Gly Ala Arg Arg
 420 425 430
 Leu Leu Ala Met Thr Asp Asn Leu Phe Gly Ile Leu Gly Ile Glu Ala
 435 440 445
 Leu Ala Ala Val Gln Gly Val Glu Leu Arg Gly Pro Leu Lys Thr Ser
 450 455 460
 Pro Glu Leu Glu Lys Ala Ala Ala Val Leu Arg Ser Ala Val Pro Val
 465 470 475 480
 Leu Glu Asp Asp Arg Tyr Met Ala Thr Asp Leu Lys Ala Ala Ile Glu
 485 490 495
 Val Val Ala Ser Gly Ala Leu Val Ser Ala Ile Ser Ser Gly Leu Pro
 500 505 510
 Val

<210> 48
 <211> 513
 <212> PRT
 <213> Agrobacterium rhizogenes

<400> 48
 Met Ala Ser Ala Pro Gln Ile Thr Leu Gly Leu Ser Gly Val Pro Leu
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 His His Leu Ala Asp Ile Tyr Trp Asn Asn Gly Ser Ala Lys Leu Asp
 20 25 30

Pro	Ser	Phe	Asp	Ala	Ala	Val	Leu	Lys	Gly	Ala	Ala	Arg	Ile	Ala	Glu
35						40			45						
Ile	Ala	Ala	Gly	Asn	Ala	Pro	Val	Tyr	Gly	Ile	Asn	Thr	Gly	Phe	Gly
50						55			60						
Lys	Leu	Ala	Ser	Ile	Lys	Ile	Asp	Ala	Ala	Asp	Leu	Ala	Thr	Leu	Gln
65						70			75			80			
Arg	Asn	Leu	Ile	Leu	Ser	His	Cys	Cys	Gly	Val	Gly	Ala	Pro	Leu	Pro
			85						90			95			
Glu	Asn	Val	Val	Arg	Leu	Ile	Met	Ala	Leu	Lys	Leu	Ile	Ser	Leu	Gly
			100						105			110			
Arg	Gly	Ala	Ser	Gly	Val	Arg	Ile	Glu	Leu	Ile	Arg	Leu	Ile	Glu	Gly
115						120			125						
Met	Leu	Glu	Lys	Gly	Val	Ile	Pro	Val	Ile	Pro	Glu	Lys	Gly	Ser	Val
130						135			140						
Gly	Ala	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ala	His	Met	Ser	Ala	Thr	Met
145						150			155			160			
Met	Gly	Glu	Gly	Glu	Ala	Phe	Asp	Tyr	Gln	Gly	Val	Gln	Met	Pro	Ser
			165						170			175			
Lys	Asp	Ala	Leu	Ala	Lys	Ala	Gly	Leu	Ser	Pro	Val	Val	Leu	Ala	Ala
			180						185			190			
Lys	Glu	Gly	Leu	Ala	Leu	Ile	Asn	Gly	Thr	Gln	Thr	Ser	Thr	Ala	Leu
195						200			205						
Ala	Leu	Ala	Gly	Leu	Phe	Arg	Ala	His	Arg	Ala	Ala	Gln	Ser	Ala	Leu
210						215			220						
Val	Thr	Gly	Ala	Leu	Ser	Thr	Asp	Ala	Ala	Met	Gly	Ser	Ser	Ala	Pro
225						230			235			240			
Phe	His	Pro	Asp	Ile	His	Thr	Pro	Leu	Arg	Gly	His	Lys	Gly	Gln	Ile
			245						250			255			
Asp	Ala	Gly	Ser	Ala	Leu	Arg	Asn	Leu	Leu	Gln	Gly	Ser	Glu	Ile	Arg
			260						265			270			
Glu	Ser	His	Ile	Glu	Gly	Asp	Glu	Arg	Val	Gln	Asp	Pro	Tyr	Cys	Ile
275						280			285						
Arg	Cys	Gln	Pro	Gln	Val	Asp	Gly	Ala	Cys	Leu	Asp	Leu	Leu	Ala	Ser
290						295			300						
Val	Ala	Arg	Thr	Leu	Glu	Ile	Glu	Ala	Asn	Ala	Val	Thr	Asp	Asn	Pro
305						310			315			320			
Leu	Val	Leu	Ser	Asp	Asn	Ser	Val	Val	Ser	Gly	Gly	Asn	Phe	His	Ala
			325						330			335			

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<210> 49
<211> 513
<212> PRT
<213> Bacillus subtilis
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Met Ala Ser Ala Pro Met Val Thr Leu Asp Gly Ser Ser Leu Thr Thr
1 5 10 15

Ala Asp Val Ala Arg Val Leu Phe Asp Phe Glu Glu Ala Ala Ala Ser
20 25 30

Glu Glu Ser Met Glu Arg Val Lys Lys Ser Arg Ala Ala Val Glu Arg
35 40 45

Ile Val Arg Asp Glu Lys Thr Ile Tyr Gly Ile Asn Thr Gly Phe Gly
50 55 60

Lys Phe Ser Asp Val Leu Ile Gln Lys Glu Asp Ser Ala Ala Leu Gln
65 70 75 80

Leu	Asn	Leu	Ile	Leu	Ser	His	Ala	Cys	Gly	Val	Gly	Asp	Pro	Phe	Pro	
				85					90						95	
Glu	Cys	Val	Ser	Arg	Ala	Met	Leu	Leu	Leu	Arg	Ala	Asn	Ala	Leu	Leu	
				100					105						110	
Lys	Gly	Phe	Ser	Gly	Val	Arg	Ala	Glu	Leu	Ile	Glu	Gln	Leu	Leu	Ala	
				115					120						125	
Phe	Leu	Asn	Lys	Arg	Val	His	Pro	Val	Ile	Pro	Gln	Gln	Gly	Ser	Leu	
				130					135						140	
Gly	Ala	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ser	His	Leu	Ala	Leu	Ala	Leu	
				145					150						155	
Ile	Gly	Gln	Gly	Glu	Val	Phe	Asp	Phe	Glu	Gly	Glu	Arg	Met	Pro	Ala	
				165					170						175	
Met	Thr	Gly	Leu	Lys	Lys	Ala	Gly	Ile	Gln	Pro	Val	Thr	Leu	Thr	Ser	
				180					185						190	
Lys	Glu	Gly	Leu	Ala	Leu	Ile	Asn	Gly	Thr	Gln	Ala	Met	Thr	Ala	Met	
				195					200						205	
Gly	Val	Val	Ala	Tyr	Ile	Glu	Ala	Glu	Lys	Leu	Ala	Tyr	Gln	Thr	Glu	
				210					215						220	
Arg	Ile	Ala	Ser	Leu	Thr	Ile	Glu	Gly	Leu	Gln	Gly	Ile	Ile	Asp	Ala	
				225					230						235	
Phe	Asp	Glu	Asp	Ile	His	Leu	Ala	Leu	Arg	Gly	Tyr	Gln	Glu	Gln	Ile	
				245					250						255	
Asp	Val	Ala	Glu	Arg	Ile	Arg	Phe	Tyr	Leu	Ser	Asp	Ser	Gly	Leu	Thr	
				260					265						270	
Thr	Ser	His	Arg	Gln	Gly	Glu	Leu	Arg	Val	Gln	Asp	Ala	Tyr	Ser	Leu	
				275					280						285	
Arg	Cys	Ile	Pro	Gln	Val	His	Gly	Ala	Thr	Trp	Gln	Thr	Leu	Gly	Tyr	
				290					295						300	
Val	Lys	Glu	Lys	Leu	Glu	Ile	Glu	Met	Asn	Ala	Ala	Thr	Asp	Asn	Pro	
				305					310						315	
Leu	Ile	Phe	Asn	Asp	Gly	Asp	Val	Ile	Ser	Gly	Gly	Asn	Phe	His	Gly	
				325					330						335	
Gln	Pro	Ile	Ala	Phe	Ala	Met	Asp	Phe	Leu	Lys	Ile	Ala	Ile	Ser	Glu	
				340					345						350	
Leu	Ala	Asn	Ile	Ala	Glu	Arg	Arg	Ile	Glu	Arg	Leu	Val	Asn	Pro	Gln	
				355					360						365	
Leu	Asn	Arg	Asp	Leu	Pro	Pro	Phe	Leu	Ser	Pro	His	Pro	Gly	Leu	Gln	
				370					375						380	

Ser Gly Ala Met Ile Met Gln Tyr Ala Ala Ala Ser Leu Val Ser Glu
385 390 395 400

Asn Lys Thr Leu Ala His Pro Ala Ser Val Asp Ser Ile Pro Ser Ser
405 410 415

Ala Asn Gln Glu Asp His Val Ser Met Gly Thr Ile Ala Ala Arg His
420 425 430

Ala Tyr Gln Val Ile Ala Asn Thr Arg Arg Val Ile Ala Ile Glu Ala
435 440 445

Ile Cys Ala Leu Gln Ala Val Glu Tyr Arg Gly Ile Glu His Ala Ala
450 455 460

Ser Tyr Thr Lys Gln Leu Phe Gln Glu Met Arg Lys Val Val Pro Ser
465 470 475 480

Ile Gln Gln Asp Arg Val Phe Ser Tyr Asp Ile Glu Arg Leu Thr Asp
485 490 495

Trp Leu Lys Lys Glu Ser Leu Ile Pro Asp His Gln Asn Lys Glu Leu
500 505 510

Arg

<210> 50

<211> 513

<212> PRT

<213> Vibrio cholerae

<400> 50

Met Ala Ser Met Leu His Leu Met Ile Lys Pro Gly Gln Leu Ser Leu
1 5 10 15

Lys Gln Leu Arg Gln Val Ser Arg Ser Pro Val Val Leu Ser Leu Asp
20 25 30

Pro Glu Ala Ile Pro Ala Ile Ala Glu Ser Ala Gln Val Val Glu Gln
35 40 45

Val Ile Ser Glu Gly Arg Thr Val Tyr Gly Ile Asn Thr Gly Phe Gly
50 55 60

Leu Leu Ala Asn Thr Lys Ile Ala Pro Gln Asp Leu Glu Thr Leu Gln
65 70 75 80

Lys Ser Ile Val Leu Ser His Ala Ala Gly Ile Gly Glu Leu Met Ser
85 90 95

Asp Glu Thr Val Arg Leu Met Met Leu Leu Lys Ile Asn Ser Leu Ala
100 105 110

Arg Gly Tyr Ser Gly Ile Arg Leu Glu Val Ile Gln Ala Leu Ile Glu
115 120 125

093740946660

Leu	Val	Asn	Asn	Gln	Ile	Tyr	Pro	Cys	Val	Pro	Lys	Lys	Gly	Ser	Val
130						135					140				
Gly	Ala	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ala	His	Met	Ser	Thr	Val	Leu
145					150					155					160
Leu	Gly	Glu	Gly	Gln	Ala	Arg	Asp	Tyr	Asn	Gly	Lys	Ile	Ile	Ser	Gly
				165					170					175	
Leu	Glu	Ala	Met	Lys	Ile	Ala	Gly	Leu	Glu	Pro	Ile	Thr	Leu	Ala	Pro
			180					185					190		
Lys	Glu	Gly	Leu	Ala	Leu	Leu	Asn	Gly	Thr	Gln	Ala	Ser	Thr	Ala	Phe
		195					200					205			
Ala	Leu	Glu	Gly	Leu	Phe	Val	Ala	Glu	Asp	Leu	Phe	Ala	Ser	Ala	Thr
	210					215					220				
Val	Cys	Gly	Ala	Met	Ser	Val	Glu	Ala	Ala	Leu	Gly	Ser	Arg	Arg	Pro
225					230					235					240
Phe	Asp	Pro	Arg	Ile	His	Arg	Pro	Val	Arg	Gly	His	Arg	Thr	Gln	Met
				245					250					255	
Asp	Ala	Ala	Thr	Ala	Tyr	Arg	His	Leu	Leu	Val	Ser	Ser	Glu	Ile	Gly
			260					265					270		
Gln	Ser	His	Ser	Asn	Cys	Glu	Gly	Lys	Val	Gln	Asp	Pro	Tyr	Ser	Leu
		275					280					285			
Arg	Cys	Gln	Pro	Gln	Val	Met	Gly	Ala	Cys	Leu	Gln	Gln	Ile	Arg	Ser
	290					295				300					
Ala	Ala	Glu	Val	Leu	Glu	Val	Glu	Ala	Asn	Ser	Val	Ser	Asp	Asn	Pro
305					310					315					320
Leu	Val	Phe	Ala	Asp	Gly	Asp	Ile	Ile	Ser	Gly	Gly	Asn	Phe	His	Ala
				325					330					335	
Glu	Pro	Val	Ala	Met	Ala	Ala	Asp	Asn	Leu	Ala	Leu	Ala	Ile	Ala	Glu
			340					345					350		
Ile	Gly	Ser	Leu	Ser	Glu	Arg	Arg	Met	Ala	Leu	Leu	Ile	Asp	Ser	Ala
		355					360					365			
Leu	Ser	Lys	Asp	Leu	Pro	Pro	Phe	Leu	Val	Asp	Asn	Gly	Gly	Val	Asn
	370					375					380				
Ser	Gly	Phe	Met	Ile	Ala	Gln	Val	Thr	Ala	Ala	Ala	Leu	Ala	Ser	Glu
385					390					395					400
Asn	Lys	Thr	Leu	Ala	His	Pro	Ala	Ser	Val	Asp	Ser	Leu	Pro	Thr	Ser
				405					410					415	
Ala	Asn	Gln	Glu	Asp	His	Val	Ser	Met	Ala	Thr	Phe	Ala	Ala	Arg	Arg
			420					425					430		

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<210> 51
<211> 513
<212> PRT
<213> Pseudomonas aeruginosa

<400> 51
Met Ala Ser Ala Met Ser Leu His Leu Lys Pro Gly Gln Leu Thr Leu
  1           5           10           15
Ala Asp Leu Arg Gln Ala Tyr Leu Ala Pro Val Arg Leu Ser Leu Asp
          20           25           30
Pro Ser Ala Asp Ala Pro Ile Ala Ser Val Ala Cys Val Glu Asn
          35           40           45
Ile Ile Ala Glu Gly Arg Thr Ala Tyr Gly Ile Asn Thr Gly Phe Gly
  50           55           60
Leu Leu Ala Ser Thr Arg Ile Ser Pro Ala Asp Leu Glu Lys Leu Gln
  65           70           75           80
Arg Ser Ile Val Leu Ser His Ala Ala Gly Val Gly Glu Ala Leu Asp
          85           90           95
Asp Ala Met Val Arg Leu Val Met Leu Leu Lys Val Asn Ser Leu Ala
          100          105          110
Arg Gly Phe Ser Gly Ile Arg Arg Lys Val Ile Asp Ala Leu Ile Ala
          115          120          125
Leu Ile Asn Ala Glu Val Tyr Pro His Ile Pro Leu Lys Gly Ser Val
          130          135          140
Gly Ala Ser Gly Asp Leu Ala Pro Leu Ala His Met Ser Leu Val Leu
  145          150          155          160
Ile Gly Glu Ser Arg Ala Arg His Ala Arg Gly Glu Trp Leu Pro Ala
          165          170          175

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Ala	Glu	Ala	Leu	Ala	Val	Ala	Gly	Leu	Glu	Pro	Leu	Thr	Leu	Ala	Ala	
			180					185					190			
Lys	Glu	Gly	Leu	Ala	Leu	Leu	Asn	Gly	Thr	Gln	Val	Ser	Thr	Ala	Tyr	
		195					200					205				
Ala	Leu	Arg	Gly	Leu	Phe	Glu	Ala	Glu	Asp	Leu	Phe	Ala	Ala	Ala	Thr	
		210					215					220				
Val	Cys	Gly	Gly	Leu	Ser	Val	Glu	Ala	Met	Leu	Gly	Ser	Arg	Ala	Pro	
225					230					235					240	
Phe	Asp	Ala	Arg	Ile	His	Ala	Ala	Leu	Arg	Gly	Gln	Arg	Gly	Gln	Ile	
				245					250					255		
Asp	Val	Ala	Ala	Ala	Tyr	Arg	Asp	Leu	Leu	Ala	Ser	Ser	Glu	Val	Ala	
			260					265					270			
Arg	Ser	His	Glu	Lys	Cys	Asp	Gly	Lys	Val	Gln	Asp	Pro	Tyr	Ser	Leu	
		275					280					285				
Arg	Cys	Gln	Pro	Gln	Val	Met	Gly	Ala	Cys	Leu	Thr	Gln	Met	Arg	Gln	
		290				295					300					
Ala	Ala	Glu	Val	Leu	Glu	Ile	Glu	Ala	Asn	Ala	Val	Ser	Asp	Asn	Pro	
305					310					315					320	
Leu	Val	Phe	Ala	Ala	Gly	Asp	Val	Ile	Ser	Gly	Gly	Asn	Phe	His	Ala	
				325					330					335		
Glu	Pro	Val	Ala	Met	Ala	Ala	Asp	Asn	Leu	Ala	Leu	Ala	Leu	Ala	Glu	
			340					345					350			
Ile	Gly	Ser	Leu	Ser	Glu	Arg	Arg	Ile	Ser	Leu	Met	Met	Asp	Met	His	
		355					360					365				
Met	Ser	Gln	Asp	Leu	Pro	Pro	Phe	Leu	Val	Ala	Asn	Gly	Gly	Val	Asn	
		370				375					380					
Ser	Gly	Phe	Met	Ile	Ala	Gln	Val	Thr	Ala	Ala	Ala	Leu	Ala	Ser	Asp	
385					390					395					400	
Asn	Lys	Ala	Leu	Ala	His	Pro	Ala	Ser	Val	Asp	Ser	Leu	Pro	Thr	Ser	
				405					410					415		
Ala	Asn	Gln	Glu	Asp	His	Val	Ser	Met	Ala	Pro	Asn	Ala	Gly	Lys	Arg	
			420					425					430			
Leu	Trp	Ala	Met	Ala	Glu	Asn	Val	Arg	Gly	Ile	Leu	Ala	Val	Glu	Trp	
		435					440					445				
Leu	Gly	Ala	Cys	Gln	Gly	Leu	Asp	Phe	Arg	Glu	Gly	Leu	Lys	Ser	Ser	
		450				455					460					
Pro	Lys	Leu	Glu	Gln	Ala	Arg	Arg	Leu	Leu	Arg	Asp	Lys	Val	Pro	Tyr	
465					470					475					480	

Tyr Gln Glu Asp Arg Phe Phe Ala Pro Asp Ile Glu Ala Ala Ser Gln
 485 490 495

Leu Leu Ala Ser Gly Cys Leu Asn Ala Leu Leu Pro Ala Arg Leu Leu
 500 505 510

Pro

<210> 52

<211> 513

<212> PRT

<213> Bacillus halodurans

<400> 52

Met Ala Met Thr Asn Leu Lys Leu Leu Asp Gly Arg Ser Leu Ser Leu
 1 5 10 15

His Asp Leu His Arg Ile Ile Tyr Glu Gly Glu Thr Val Gly Ala Ser
 20 25 30

Asp Glu Ser Met Glu Lys Val Lys Gln Ser Arg Lys Ala Val Glu Gln
 35 40 45

Ile Val Ala Asp Glu Lys Ile Ile Tyr Gly Ile Thr Thr Gly Phe Gly
 50 55 60

Lys Phe Ser Asp Ile Phe Ile Asp Pro Asp Asp Val Glu Asn Leu Gln
 65 70 75 80

His Asn Leu Ile Tyr Ser His Ala Cys Gly Val Gly Ser Pro Phe Pro
 85 90 95

Glu Thr Val Ser Arg Thr Met Leu Val Leu Arg Ala Asn Ala Leu Leu
 100 105 110

Lys Gly Phe Ser Gly Val Arg Pro Leu Val Ile Glu Arg Leu Leu Ala
 115 120 125

Leu Val Asn Ala Asn Ile His Pro Val Ile Pro Gln Gln Gly Ser Leu
 130 135 140

Gly Ala Ser Gly Asp Leu Ala Pro Leu Ser His Leu Ala Leu Val Leu
 145 150 155 160

Leu Gly Glu Gly Glu Val Phe Asp Tyr Lys Gly Thr Lys Thr Lys Ala
 165 170 175

Ser Phe Ala Leu Lys Glu Glu Glu Ile Glu Pro Ile Thr Leu Thr Ala
 180 185 190

Lys Glu Gly Leu Ala Leu Ile Asn Gly Thr Gln Ala Met Thr Ala Met
 195 200 205

Gly Val Ile Ala Tyr Leu Glu Ala Glu Lys Leu Ala Phe Gln Ser Glu
 210 215 220

<210> 53
 <211> 513
 <212> PRT
 <213> Pseudomonas putida

<400> 53

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Met Ala Ser Ala Thr Glu Leu Thr Leu Lys Pro Gly Thr Leu Thr Leu
  1          5          10          15

Ala Gln Leu Arg Ala Ile His Ala Ala Pro Val Arg Leu Gln Leu Asp
      20          25          30

Ala Ser Ala Ala Pro Ala Ile Asp Ala Ser Val Ala Cys Val Glu Gln
      35          40          45

Ile Ile Ala Glu Asp Arg Thr Ala Tyr Gly Ile Asn Thr Gly Phe Gly
      50          55          60

Leu Leu Ala Ser Thr Arg Ile Ala Ser His Asp Leu Glu Asn Leu Gln
      65          70          75          80

Arg Ser Leu Val Leu Ser His Ala Ala Gly Ile Gly Ala Pro Leu Asp
      85          90          95

Asp Asp Leu Val Arg Leu Ile Met Val Leu Lys Ile Asn Ser Leu Ser
      100          105          110

Arg Gly Phe Ser Gly Ile Arg Arg Lys Val Ile Asp Ala Leu Ile Ala
      115          120          125

Leu Val Asn Ala Glu Val Tyr Pro His Ile Pro Leu Lys Gly Ser Val
      130          135          140

Gly Ala Ser Gly Asp Leu Ala Pro Leu Ala His Met Ser Leu Val Leu
      145          150          155          160

Leu Gly Glu Gly Lys Ala Arg Asp Tyr Lys Gly Gln Trp Leu Ser Ala
      165          170          175

Thr Glu Ala Leu Ala Val Ala Gly Leu Glu Pro Leu Thr Leu Ala Ala
      180          185          190

Lys Glu Gly Leu Ala Leu Leu Asn Gly Thr Gln Ala Ser Thr Ala Tyr
      195          200          205

Ala Leu Arg Gly Leu Phe Tyr Ala Glu Asp Leu Tyr Ala Ala Ala Ile
      210          215          220

Ala Cys Gly Gly Leu Ser Val Glu Ala Val Leu Gly Ser Arg Ser Pro
      225          230          235          240

Phe Asp Ala Arg Ile His Glu Ala Leu Arg Gly Gln Arg Gly Gln Ile
      245          250          255

Asp Thr Ala Ala Cys Phe Arg Asp Leu Leu Gly Asp Ser Ser Glu Val
      260          265          270

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09374 0301

Ser Asp Leu Glu Thr Ile Tyr Trp Thr Gly Ala Pro Ala Arg Leu Asp
 20 25 30
 Ala Ala Phe Asp Ala Gly Ile Ala Lys Ala Ala Ala Arg Ile Ala Glu
 35 40 45
 Ile Val Ala Gly Asn Ala Pro Val Tyr Gly Ile Asn Thr Gly Phe Gly
 50 55 60
 Lys Leu Ala Ser Ile Lys Ile Asp Ser Ser Asp Val Ala Thr Leu Gln
 65 70 75 80
 Arg Asn Leu Ile Leu Ser His Cys Cys Gly Val Gly Gln Pro Leu Thr
 85 90 95
 Glu Asp Ile Val Arg Leu Ile Met Ala Leu Lys Leu Ile Ser Leu Gly
 100 105 110
 Arg Gly Ala Ser Gly Val Arg Leu Glu Leu Val Arg Leu Ile Glu Ala
 115 120 125
 Met Leu Asp Lys Gly Val Ile Pro Leu Ile Pro Glu Lys Gly Ser Val
 130 135 140
 Gly Ala Ser Gly Asp Leu Ala Pro Leu Ala His Met Ala Ala Val Met
 145 150 155 160
 Met Gly His Gly Glu Ala Phe Phe Ala Gly Glu Arg Met Lys Gly Asp
 165 170 175
 Ala Ala Leu Lys Ala Glu Ala Gly Leu Ser Pro Val Thr Leu Ala Ala
 180 185 190
 Lys Glu Gly Leu Ala Leu Ile Asn Gly Thr Gln Val Ser Thr Ala Leu
 195 200 205
 Ala Leu Ala Gly Leu Phe Arg Ala His Arg Ala Gly Gln Ala Ala Leu
 210 215 220
 Ile Thr Gly Ala Leu Ser Thr Asp Ala Ala Met Gly Ser Ser Ala Pro
 225 230 235 240
 Phe His Pro Asp Ile Gln His Cys Ala Ala Ile Arg Ala Arg Ser Thr
 245 250 255
 Arg Ala Ala Ala Asn Leu Arg Gln Leu Leu Thr Gly Ser Pro Ile Arg
 260 265 270
 Gln Ser His Ile Glu Gly Asp Glu Arg Val Gln Asp Pro Tyr Cys Ile
 275 280 285
 Arg Cys Gln Pro Gln Val Asp Gly Ala Cys Leu Asp Leu Leu Arg Ser
 290 295 300
 Val Ala Ala Thr Leu Thr Ile Glu Ala Asn Ala Val Thr Asp Asn Pro
 305 310 315 320

Leu Val Leu Ser Asp Asn Ser Val Val Ser Gly Gly Asn Phe His Ala
 325 330 335
 Glu Pro Val Ala Phe Ala Ala Asp Gln Ile Ala Leu Ala Val Cys Glu
 340 345 350
 Ile Gly Ala Ile Ser Gln Arg Arg Ile Ala Leu Leu Val Asp Pro Ala
 355 360 365
 Leu Ser Leu Arg Leu Pro Ala Phe Leu Ala Lys Lys Pro Gly Leu Asn
 370 375 380
 Ser Gly Leu Met Ile Ala Glu Val Thr Ser Ala Ala Leu Met Ser Glu
 385 390 395 400
 Asn Lys Gln Leu Ser His Pro Ala Ser Val Asp Ser Thr Pro Thr Ser
 405 410 415
 Ala Asn Gln Glu Asp His Val Ser Met Ala Cys His Gly Ala Arg Arg
 420 425 430
 Leu Leu Gln Met Thr Glu Asn Leu Phe Ser Ile Ile Gly Ile Glu Ala
 435 440 445
 Leu Ala Ala Val Gln Gly Ile Glu Phe Arg Ala Pro Leu Thr Thr Ser
 450 455 460
 Pro Glu Leu Gln Lys Ala Ala Ala Val Arg Gly Val Ser Ser Ser
 465 470 475 480
 Ile Glu Glu Asp Arg Tyr Met Ala Asp Asp Leu Lys Ala Ala Gly Asp
 485 490 495
 Leu Val Ala Ser Gly Arg Leu Ala Ala Ala Val Ser Ala Gly Leu Pro
 500 505 510
 Lys

<210> 55

<211> 513

<212> PRT

<213> *Pseudomonas aeruginosa*

<400> 55

Met Ser Asp Leu Pro Ser Val Val Phe Gly Asp Gly Pro Leu Arg Trp
 1 5 10 15

Gln Glu Leu Val Ala Val Ala Arg His Gly Ala Arg Leu Glu Leu Ser
 20 25 30

Ala Ala Ala Trp Ala Arg Ile Asp Asn Ala Arg Ala Ile Val Cys Arg
 35 40 45

Ile Val Ala Asn Gly Glu Arg Ala Tyr Gly Ile Ser Thr Gly Leu Gly
 50 55 60

Val Ser Arg Gly Leu Pro Ala Phe Leu Val Gly Lys Pro Gly Val Asn
 370 375 380

Ser Gly Met Met Ile Thr Gln Tyr Val Ala Ala Ser Leu Ala Gly Glu
 385 390 395 400

Asn Arg Gln Leu Ala Gln Pro Ala Val Val Asp Asn Phe Val Thr Ser
 405 410 415

Ala Leu Gln Glu Asp His Leu Ser Leu Gly Thr Ser Ala Ala Leu Lys
 420 425 430

Leu Gly Arg Ala Leu Glu Asn Leu Arg Arg Ile Leu Ala Ile Glu Tyr
 435 440 445

Leu Leu Ala Ala Gln Ala Phe Glu Phe Leu Ala Pro Gln Arg Phe Gly
 450 455 460

Gln Gly Thr Ala Ala Ala Trp Gly Ile Leu Arg Glu Arg Val Pro Ala
 465 470 475 480

Tyr Asp Thr Asp Arg Trp Leu Ala Pro Asp Ile Ala Ser Ala Ala Ala
 485 490 495

Ile Leu Gly Glu Arg Lys Ser Leu Ala Arg Leu Ala Ala Ser Ile Gly
 500 505 510

Asp

<210> 56
 <211> 513
 <212> PRT
 <213> Homo sapiens

<400> 56

Lys Tyr Arg Glu Pro Glu Lys Tyr Ile Glu Leu Asp Gly Leu Thr Thr
 1 5 10 15

Glu Asp Leu Val Asn Leu Gly Lys Gly Arg Tyr Lys Ile Lys Leu Thr
 20 25 30

Pro Thr Ala Glu Lys Arg Val Gln Lys Ser Arg Glu Val Ile Asp Ser
 35 40 45

Ile Ile Lys Glu Lys Thr Val Val Tyr Gly Ile Thr Thr Gly Phe Gly
 50 55 60

Lys Phe Ala Thr Arg Thr Val Ile Pro Ile Asn Lys Leu Gln Leu Gln
 65 70 75 80

Val Asn Leu Val Arg Ser His Ser Ser Gly Val Gly Lys Pro Leu Ser
 85 90 95

Pro Glu Arg Cys Arg Met Leu Leu Ala Leu Arg Ile Asn Val Leu Ala
 100 105 110

003414560

Lys	Gly	Tyr	Ser	Gly	Ile	Ser	Leu	Glu	Thr	Leu	Lys	Gln	Val	Ile	Glu
115						120				125					
Met	Phe	Asn	Ala	Ser	Cys	Leu	Pro	Tyr	Val	Pro	Glu	Lys	Gly	Thr	Val
130						135				140					
Gly	Ala	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ser	His	Leu	Ala	Leu	Gly	Leu
145				150						155		160			
Val	Gly	Glu	Gly	Lys	Met	Trp	Ser	Pro	Lys	Ser	Gly	Trp	Ala	Asp	Ala
				165				170						175	
Lys	Tyr	Val	Leu	Glu	Ala	His	Gly	Leu	Lys	Pro	Val	Ile	Leu	Lys	Pro
		180						185				190			
Lys	Glu	Gly	Leu	Ala	Leu	Ile	Asn	Gly	Thr	Gln	Met	Ile	Thr	Ser	Leu
		195				200						205			
Gly	Cys	Glu	Ala	Val	Glu	Arg	Ala	Ser	Ala	Ile	Ala	Arg	Gln	Ala	Asp
210						215				220					
Ile	Val	Ala	Ala	Leu	Thr	Leu	Glu	Val	Leu	Lys	Gly	Thr	Thr	Lys	Ala
225				230						235				240	
Phe	Asp	Thr	Asp	Ile	His	Ala	Pro	Leu	Arg	Pro	His	Arg	Gly	Gln	Ile
				245				250						255	
Glu	Val	Ala	Phe	Arg	Phe	Arg	Ser	Leu	Leu	Ser	Asp	Ser	Glu	Ile	Ala
		260						265				270			
Glu	Ser	His	Arg	Phe	Cys	Asp	Gly	Arg	Val	Gln	Asp	Ala	Tyr	Thr	Leu
		275				280						285			
Arg	Cys	Cys	Pro	Gln	Val	His	Gly	Val	Val	Asn	Asp	Thr	Ile	Ala	Phe
290						295				300					
Val	Lys	Asn	Ile	Ile	Thr	Thr	Glu	Leu	Asn	Ser	Ala	Thr	Asp	Asn	Pro
305				310						315		320			
Met	Val	Phe	Ala	Asn	Gly	Glu	Thr	Val	Ser	Gly	Gly	Asn	Phe	His	Gly
				325				330						335	
Glu	Tyr	Pro	Ala	Lys	Ala	Leu	Asp	Tyr	Leu	Ala	Ile	Gly	Ile	His	Glu
		340						345				350			
Leu	Ala	Ala	Ile	Ser	Glu	Arg	Arg	Ile	Glu	Arg	Leu	Cys	Asn	Pro	Ser
355						360						365			
Leu	Ser	Arg	Glu	Leu	Pro	Ala	Phe	Leu	Val	Ala	Glu	Gly	Gly	Leu	Asn
370						375				380					
Ser	Gly	Phe	Met	Ile	Ala	His	Cys	Thr	Ala	Ala	Ala	Leu	Val	Ser	Glu
385				390						395		400			
Asn	Lys	Ala	Leu	Cys	His	Pro	Ser	Ser	Val	Asp	Ser	Leu	Ser	Thr	Ser
				405				410						415	

<400>	57														
Val	Leu	Ala	Pro	Pro	Thr	Lys	Leu	Leu	Ile	Leu	Asp	Gly	Asn	Ser	Pro
1				5					10					15	
Glu	Asp	Leu	Val	Arg	Cys	Glu	Lys	Gly	Glu	Cys	Ala	Ile	Gln	Leu	Ser
			20					25					30		
Met	Glu	Ser	Glu	Asp	Arg	Ile	Arg	Lys	Ala	Arg	Thr	Phe	Leu	Glu	Lys
		35					40					45			
Ile	Ala	Ser	Glu	His	Arg	Ala	Val	Tyr	Gly	Val	Thr	Thr	Gly	Phe	Gly
	50					55					60				
Thr	Phe	Ser	Asn	Val	Thr	Ile	Pro	Pro	Glu	Lys	Leu	Lys	Lys	Leu	Gln
65					70					75					80
Leu	Asn	Leu	Ile	Arg	Ser	His	Ala	Thr	Gly	Tyr	Gly	Glu	Pro	Leu	Ala
				85					90					95	
Pro	Asn	Arg	Ala	Arg	Met	Leu	Leu	Ala	Leu	Arg	Ile	Asn	Ile	Leu	Ala
			100					105					110		
Lys	Gly	His	Ser	Gly	Ile	Ser	Val	Glu	Asn	Ile	Lys	Lys	Met	Ile	Ala
		115					120					125			
Ala	Phe	Asn	Ala	Phe	Cys	Val	Ser	Tyr	Val	Pro	Gln	Gln	Gly	Thr	Val
	130					135					140				
Gly	Cys	Ser	Gly	Asp	Leu	Cys	Pro	Leu	Ala	His	Leu	Ala	Leu	Gly	Leu
145					150					155					160

Ala Pro Leu His Lys Ile Tyr Gln Leu Val Arg Ser Lys Val Ala Pro
465 470 475 480

Pro Asn Glu Asp Arg Tyr Met Lys Pro Glu Ile Asp Ala Val Leu Glu
485 490 495

Met Ile Arg Glu Asn Arg Ile Trp Glu Ala Val Leu Pro His Leu Glu
500 505 510

Thr

<210> 58

<211> 513

<212> PRT

<213> Thermoplasma acidophilum

<400> 58

Met Ala Ser Ala Pro Met Ile Glu Ile Asp Gly Arg Ser Leu Arg Val
1 5 10 15

Glu Asp Val Tyr Ala Val Ala Val Glu Tyr Asp Arg Val Ser Ile Ser
20 25 30

Asp Asp Thr Leu Lys Ala Val Glu Glu Lys His Glu Ala Phe Leu Lys
35 40 45

Leu Ile Asn Ser Gly Lys Thr Val Tyr Gly Val Asn Thr Gly Phe Gly
50 55 60

Ser Leu Leu Asn Val His Ile Glu Arg Asp Gln Glu Ile Glu Leu Gln
65 70 75 80

Lys Asn Leu Ile Arg Ser His Ser Ser Gly Val Gly Asp Tyr Leu Glu
85 90 95

Asn Arg Tyr Val Arg Ala Ile Met Ala Val Arg Leu Asn Ser Leu Ala
100 105 110

Ala Gly Tyr Ser Ala Val Ser Ala Asp Leu Leu Asn Met Met Val Glu
115 120 125

Met Leu Asn Arg Asp Val Ile Pro Ala Val Pro Lys Tyr Gly Ser Val
130 135 140

Gly Ala Ser Gly Asp Leu Ala Pro Leu Ala His Ile Gly Leu Ala Met
145 150 155 160

Met Gly Glu Gly Lys Ala Phe Asp Phe Glu Gly Arg Leu Met Asp Ser
165 170 175

Ala Arg Ala Leu Glu Lys Ala Gly Leu Lys Pro Tyr Gln Phe Lys Glu
180 185 190

Lys Glu Gly Val Ala Leu Ile Asn Gly Thr Ser Phe Met Ser Gly Ile
195 200 205

09974:07307

<400> 59

Glu Asp Leu Val Asn Leu Gly Lys Gly Arg Tyr Lys Ile Lys Leu Thr
20 25 30

Ser Ile Ala Glu Lys Lys Val Gln Gln Ser Arg Glu Val Ile Asp Ser
35 40 45

Ile Ile Lys Glu Arg Thr Val Val Tyr Gly Ile Thr Thr Gly Phe Gly
50 55 60

Lys Phe Ala Thr Arg Thr Val Ile Pro Ala Asn Lys Leu Gln Leu Gln
65 70 75 80

Val Asn Leu Val Arg Ser His Ser Ser Gly Val Gly Lys Pro Leu Ser
85 90 95

Pro Glu Arg Cys Arg Met Leu Leu Ala Leu Arg Ile Asn Val Leu Ala
100 105 110

Lys Gly Tyr Ser Gly Ile Ser Leu Glu Thr Leu Lys Gln Val Ile Glu
115 120 125

Ala Phe Asn Ala Ser Cys Leu Ser Tyr Val Pro Glu Lys Gly Thr Val
130 135 140

Gly Ala Ser Gly Asp Leu Ala Pro Leu Ser His Leu Ala Leu Gly Leu
145 150 155 160

Ile Gly Glu Gly Lys Met Trp Ser Pro Lys Ser Gly Trp Ala Asp Ala
165 170 175

Lys Tyr Val Leu Glu Ala His Gly Leu Lys Pro Ile Val Leu Lys Pro
180 185 190

Lys Glu Gly Leu Ala Leu Ile Asn Gly Thr Gln Met Ile Thr Ser Leu
195 200 205

Gly Cys Glu Ala Leu Glu Arg Ala Ser Ala Ile Ala Arg Gln Ala Asp
210 215 220

Ile Val Ala Ala Leu Thr Leu Glu Val Leu Lys Gly Thr Thr Lys Ala
225 230 235 240

Phe Asp Thr Asp Ile His Ala Pro Val Arg Pro His Arg Gly Gln Ile
245 250 255

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<210> 60
<211> 513
<212> PRT
<213> Mus musculus
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<400> 60
Lys Tyr Arg Glu Pro Glu Lys Tyr Ile Ala Leu Asp Gly Asp Ser Thr
 1          5          10          15
Glu Asp Leu Val Asn Leu Gly Lys Gly Arg Tyr Lys Ile Lys Leu Thr
          20          25          30
Ser Ile Ala Glu Lys Lys Val Gln Gln Ser Arg Glu Val Ile Asp Ser
          35          40          45
Ile Ile Lys Glu Arg Thr Val Val Tyr Gly Ile Thr Thr Gly Phe Gly
          50          55          60
Lys Phe Ala Thr Arg Thr Val Ile Pro Ala Asn Lys Leu Gln Leu Gln
          65          70          75          80
Val Asn Leu Val Arg Ser His Ser Ser Gly Val Gly Lys Pro Leu Ser
          85          90          95
Pro Glu Arg Cys Arg Met Leu Leu Ala Leu Arg Ile Asn Val Leu Ala
          100          105          110
Lys Gly Tyr Ser Gly Ile Ser Leu Glu Thr Leu Lys Gln Val Ile Glu
          115          120          125
Ala Phe Asn Ala Ser Cys Leu Ser Tyr Val Pro Glu Lys Gly Thr Val
          130          135          140
Gly Ala Ser Gly Asp Leu Ala Pro Leu Ser His Leu Ala Leu Gly Leu
          145          150          155          160
Ile Gly Glu Gly Lys Met Trp Ser Pro Lys Ser Gly Trp Ala Asp Ala
          165          170          175
Lys Tyr Val Leu Glu Ala His Gly Leu Lys Pro Ile Val Leu Lys Pro
          180          185          190
Lys Glu Gly Leu Ala Leu Ile Asn Gly Thr Gln Met Ile Thr Ser Leu
          195          200          205
Gly Cys Glu Ala Leu Glu Arg Ala Ser Ala Ile Ala Arg Gln Ala Asp
          210          215          220
Ile Val Ala Ala Leu Thr Leu Glu Val Leu Lys Gly Thr Thr Lys Ala
          225          230          235          240
Phe Asp Thr Asp Ile His Ala Pro Val Arg Pro His Arg Gly Gln Ile
          245          250          255
Glu Val Ala Phe Arg Phe Arg Ser Leu Leu Ser Asp Ser Glu Ile Ala
          260          265          270
Glu Ser His Arg Phe Cys Asp Gly Arg Val Gln Asp Ala Tyr Thr Leu
          275          280          285
Arg Cys Cys Pro Gln Val His Gly Val Val Asn Asp Thr Ile Ala Phe
          290          295          300

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Val Lys Asp Ile Ile Thr Thr Glu Leu Asn Ser Ala Thr Asp Asn Pro
 305 310 315 320
 Met Val Phe Ala Ser Gly Glu Thr Ile Ser Gly Gly Asn Phe His Gly
 325 330 335
 Glu Tyr Pro Ala Lys Ala Leu Asp Tyr Leu Ala Ile Gly Val His Glu
 340 345 350
 Leu Ala Ala Ile Ser Glu Arg Arg Ile Glu Arg Leu Cys Asn Pro Ser
 355 360 365
 Leu Ser Arg Glu Leu Pro Ala Phe Leu Val Ala Glu Gly Gly Leu Asn
 370 375 380
 Ser Gly Phe Met Ile Ala His Cys Thr Ala Ala Ala Leu Val Ser Glu
 385 390 395 400
 Ser Lys Ala Leu Cys His Pro Ser Ser Val Asp Ser Leu Ser Thr Ser
 405 410 415
 Ala Ala Thr Glu Asp His Val Ser Met Gly Gly Trp Ala Ala Arg Lys
 420 425 430
 Ala Leu Arg Val Val Glu His Val Glu Gln Val Leu Ala Ile Glu Leu
 435 440 445
 Leu Ala Ala Cys Gln Gly Ile Glu Phe Leu Arg Pro Leu Lys Thr Thr
 450 455 460
 Thr Pro Leu Glu Lys Val Tyr Asp Leu Val Arg Ser Val Val Arg Pro
 465 470 475 480
 Trp Ile Lys Asp Arg Phe Met Ala Pro Asp Ile Glu Ala Ala His Arg
 485 490 495
 Leu Leu Leu Asp Gln Lys Val Trp Glu Val Ala Ala Pro Tyr Ile Glu
 500 505 510
 Lys

<210> 61
 <211> 513
 <212> PRT
 <213> Rattus sp.

<400> 61
 Lys Tyr Arg Glu Pro Glu Lys Tyr Ile Ala Leu Asp Gly Asp Ser Thr
 1 5 10 15
 Glu Asp Leu Val Asn Leu Gly Lys Gly His Tyr Lys Ile Lys Leu Thr
 20 25 30
 Ser Ile Ala Glu Lys Lys Val Gln Gln Ser Arg Glu Val Ile Asp Ser
 35 40 45

109720"542E350

Ile	Ile	Lys	Glu	Arg	Thr	Val	Val	Tyr	Gly	Ile	Thr	Thr	Gly	Phe	Gly
50						55					60				
Lys	Phe	Ala	Thr	Arg	Thr	Val	Ile	Pro	Ala	Asn	Lys	Leu	Gln	Leu	Gln
65					70					75					80
Val	Asn	Leu	Val	Arg	Ser	His	Ser	Ser	Gly	Val	Gly	Lys	Pro	Leu	Ser
				85					90					95	
Pro	Glu	Arg	Cys	Arg	Met	Leu	Leu	Ala	Leu	Arg	Ile	Asn	Val	Leu	Ala
			100					105					110		
Lys	Gly	Tyr	Ser	Gly	Ile	Ser	Leu	Glu	Thr	Leu	Lys	Gln	Val	Ile	Glu
		115					120					125			
Val	Phe	Asn	Ala	Ser	Cys	Leu	Ser	Tyr	Val	Pro	Glu	Lys	Gly	Thr	Val
	130					135					140				
Gly	Ala	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ser	His	Leu	Ala	Leu	Gly	Leu
145					150					155					160
Ile	Gly	Glu	Gly	Lys	Met	Trp	Ser	Pro	Lys	Ser	Gly	Trp	Ala	Asp	Ala
				165					170					175	
Lys	Tyr	Val	Leu	Glu	Ala	His	Gly	Leu	Lys	Pro	Ile	Val	Leu	Lys	Pro
			180					185					190		
Lys	Glu	Gly	Leu	Ala	Leu	Ile	Asn	Gly	Thr	Gln	Met	Ile	Thr	Ser	Leu
		195					200					205			
Gly	Cys	Glu	Ala	Val	Glu	Arg	Ala	Ser	Ala	Ile	Ala	Arg	Gln	Ala	Asp
	210					215					220				
Ile	Val	Ala	Ala	Leu	Thr	Leu	Glu	Val	Leu	Lys	Gly	Thr	Thr	Lys	Ala
225					230					235					240
Phe	Asp	Thr	Asp	Ile	His	Ala	Pro	Val	Arg	Pro	His	Arg	Gly	Gln	Ile
				245					250					255	
Glu	Val	Ala	Phe	Arg	Phe	Arg	Ser	Leu	Leu	Ser	Asp	Ser	Glu	Ile	Ala
			260					265					270		
Glu	Ser	His	Arg	Phe	Cys	Asp	Gly	Arg	Val	Gln	Asp	Ala	Tyr	Thr	Leu
		275					280					285			
Arg	Cys	Cys	Pro	Gln	Val	His	Gly	Val	Val	Asn	Asp	Thr	Ile	Ala	Phe
	290					295					300				
Val	Lys	Asp	Ile	Ile	Thr	Thr	Glu	Leu	Asn	Ser	Ala	Thr	Asp	Asn	Pro
305					310					315					320
Met	Val	Phe	Ala	Ser	Gly	Glu	Thr	Ile	Ser	Gly	Gly	Asn	Phe	His	Gly
				325					330					335	
Glu	Tyr	Pro	Ala	Lys	Ala	Leu	Asp	Tyr	Leu	Ala	Ile	Gly	Val	His	Glu
			340					345					350		

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<400> 62
Met Ala Ser Met Asn Ala Leu Thr Leu Thr Pro Gly Thr Leu Thr Leu
  1              5              10              15
Ala Gln Leu Arg Gln Val Trp Gln Gln Pro Leu Gln Leu Thr Leu Asp
              20              25              30
Glu Ser Ala His Glu Ala Ile Asn Asp Ser Val Ala Cys Val Glu Ala
              35              40              45
Ile Val Ala Glu Gly Arg Thr Ala Tyr Gly Ile Asn Thr Gly Phe Gly
  50              55              60
Leu Leu Ala Gln Thr Arg Ile Ala Thr His Asp Leu Glu Asn Leu Gln
  65              70              75              80

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Arg	Ser	Leu	Val	Leu	Ser	His	Ala	Ala	Gly	Val	Gly	Glu	Pro	Leu	Asp	
				85					90					95		
Asp	Asp	Ile	Val	Arg	Leu	Met	Met	Val	Leu	Lys	Ile	Asn	Ser	Leu	Ala	
				100					105					110		
Arg	Gly	Phe	Ser	Gly	Ile	Arg	Leu	Ser	Val	Ile	Gln	Ala	Leu	Ile	Ala	
				115					120					125		
Leu	Val	Asn	Ala	Gly	Val	Tyr	Ser	Val	Asp	Pro	Ala	Lys	Gly	Ser	Val	
				130					135					140		
Gly	Ala	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Ala	His	Met	Ser	Leu	Thr	Leu	
				145					150					155		
Leu	Gly	Glu	Gly	Lys	Ala	Arg	Asp	Tyr	Arg	Gly	Glu	Trp	Leu	Pro	Ala	
				165					170					175		
Ala	Thr	Ala	Leu	Gln	Lys	Ala	Gly	Leu	Ala	Pro	Val	Thr	Leu	Ala	Ala	
				180					185					190		
Lys	Glu	Gly	Leu	Ala	Leu	Leu	Asn	Gly	Thr	Gln	Ala	Ser	Thr	Ala	Phe	
				195					200					205		
Ala	Leu	Arg	Gly	Leu	Phe	Glu	Ala	Glu	Asp	Leu	Phe	Ala	Ser	Ala	Val	
				210					215					220		
Val	Cys	Gly	Ala	Leu	Thr	Thr	Glu	Ala	Val	Leu	Gly	Ser	Arg	Arg	Pro	
				225					230					235		
Phe	Asp	Ala	Arg	Ile	His	Glu	Pro	Val	Arg	Gly	Gln	Arg	Gly	Gln	Ile	
				245					250					255		
Asp	Ala	Ala	Ala	Leu	Phe	Arg	His	Val	Leu	Thr	Asp	Thr	Ser	Ala	Ile	
				260					265					270		
Ala	Ser	His	His	Asn	Cys	Asp	Gly	Lys	Val	Gln	Asp	Pro	Tyr	Ser	Leu	
				275					280					285		
Arg	Cys	Gln	Pro	Gln	Val	Met	Gly	Ala	Cys	Leu	Thr	Gln	Met	Arg	Gln	
				290					295					300		
Val	Ala	Glu	Val	Leu	Leu	Val	Glu	Ser	Asn	Ala	Val	Ser	Asp	Asn	Pro	
				305					310					315		
Leu	Val	Phe	Ala	Ala	Asn	Glu	Met	Val	Phe	Arg	Gly	Asn	Phe	His	Ala	
				325					330					335		
Glu	Pro	Val	Ala	Met	Ala	Ala	Asp	Asn	Leu	Ala	Leu	Ala	Ile	Ala	Glu	
				340					345					350		
Ile	Gly	Ala	Leu	Ser	Glu	Arg	Arg	Ile	Ala	Leu	Met	Met	Asp	Lys	His	
				355					360					365		
Met	Ser	Gln	Asp	Leu	Pro	Pro	Phe	Leu	Val	Arg	Asn	Gly	Gly	Val	Asn	
				370					375					380		

Ser Gly Phe Met Ile Ala Gln Val Thr Ala Ala Ala Leu Ala Ser Glu
385 390 395 400

Asn Lys Gly Leu Cys His Pro Thr Ser Val Asp Lys Ile Pro Pro Ser
405 410 415

Ala Asn Gln Glu Asp His Val Ser Met Ala Pro Ala Ala Gly Arg Arg
420 425 430

Leu Trp Glu Met Ala Gly Asn Thr Arg Gly Val Leu Ala Val Glu Trp
435 440 445

Leu Ala Ala Cys Gln Gly Ala Asp Leu Arg Asp Gly Leu Thr Ser Ser
450 455 460

Pro Leu Leu Glu Gln Ala Arg Gln Ser Cys Gly Glu Gln Val Ala His
465 470 475 480

Tyr Asp Asp Asp Arg Phe Phe Ala Pro Asp Ile Glu Ala Ala Ile Ser
485 490 495

Leu Leu Asn Lys Gly Ser Leu Val Gly Leu Leu Pro Ala Phe Leu Pro
500 505 510

Ala

<210> 63

<211> 513

<212> PRT

<213> Rhizobium meliloti

<400> 63

Met Ala Ser Ala Met Gly Glu Met Ile Ser Leu Asp Gly Pro Leu Thr
1 5 10 15

Trp Arg Glu Ile Ala Ser Ile Ala Glu Gly Ala Ser Leu Asp Leu Ser
20 25 30

Gly Pro Ala Arg Leu Arg Ile Ala Gln Ala Arg Arg Ile Val Asp Ala
35 40 45

Leu Val Glu Arg Gly Ile Arg Gly Tyr Gly Ile Asn Thr Gly Val Gly
50 55 60

Ala Leu Cys Asp Val Ile Ile Ser Arg Glu Asn Gln Gln Ala Leu Ser
65 70 75 80

Arg Asn Ile Ile Leu Ser His Ala Cys Gly Val Gly Asp Pro Leu Gly
85 90 95

Arg Val Glu Ala Arg Ala Val Met Ala Ala Gln Ile Ala Asn Leu Thr
100 105 110

His Gly Tyr Ser Gly Val Arg Val Glu Thr Ala Glu Met Leu Leu Ala
115 120 125

093374 07304

Leu	Leu	Asn	Ala	Asp	Ile	Ile	Pro	Leu	Ile	Pro	Ser	Arg	Gly	Ser	Val
130						135					140				
Gly	Tyr	Ser	Gly	Asp	Leu	Ala	Pro	Leu	Thr	His	Ala	Ala	Leu	Val	Leu
145					150					155					160
Ile	Gly	His	Gly	Ser	Ala	Met	Gln	Gly	Thr	Glu	Arg	Leu	Ser	Gly	Ala
				165					170					175	
Asp	Ala	Leu	Phe	Ala	Arg	Leu	Gly	Leu	Ala	Pro	Leu	Arg	Leu	Glu	Ala
			180					185					190		
Lys	Glu	Gly	Leu	Ser	Leu	Val	Asn	Gly	Thr	Pro	Cys	Ala	Thr	Gly	Leu
		195					200					205			
Ala	Ala	Leu	Ala	Leu	Ala	Arg	Thr	Glu	Arg	Leu	Phe	Ala	Trp	Ala	Asp
	210					215					220				
Ala	Ala	Ala	Ala	Met	Thr	Tyr	Glu	Ala	Asn	Leu	Gly	Ser	Gln	Ala	Asn
225					230					235					240
Ala	Phe	Ala	Glu	Leu	Pro	Leu	Ala	Leu	Arg	Gln	Ser	Pro	Gly	Leu	Ser
				245					250					255	
Ala	Val	Gly	Glu	Gly	Leu	Arg	Asp	Trp	Leu	Ala	Asp	Ser	Pro	Met	Leu
			260					265					270		
Ala	Gly	His	Arg	Thr	Ala	Gly	Thr	Arg	Thr	Gln	Asp	Pro	Leu	Ser	Leu
		275					280					285			
Arg	Ala	Val	Pro	Gln	Val	His	Gly	Ala	Ala	Arg	Asp	Ala	Phe	Gly	Gln
	290					295					300				
Val	Ala	Glu	Ile	Val	Asp	Arg	Glu	Leu	Ala	Ser	Val	Thr	Asp	Asn	Pro
305					310					315					320
Ala	Val	Ala	Gly	Ser	Pro	Glu	Val	His	Ser	Gln	Ala	His	Ala	Val	Gly
				325					330					335	
Ala	Ala	Leu	Gly	Leu	Ala	Met	Asp	Ser	Leu	Ala	Val	Ala	Val	Ala	Glu
			340					345					350		
Val	Ala	Ala	Ile	Ser	Glu	Arg	Arg	Ile	Asp	Arg	Leu	Val	Asn	Pro	Leu
		355					360					365			
Val	Ser	Arg	Gly	Leu	Pro	Ala	Phe	Leu	Ala	Gly	Asp	Ser	Gly	Val	Ser
	370					375					380				
Ser	Gly	Phe	Met	Ile	Ala	Gln	Tyr	Thr	Ala	Ala	Ala	Leu	Val	Ala	Glu
385					390					395					400
Asn	Arg	Arg	Leu	Ala	Ala	Pro	Ala	Ser	Leu	Asp	Gly	Gly	Ile	Thr	Ser
				405					410					415	
Ala	Leu	Gln	Glu	Asp	Met	Leu	Thr	His	Ala	Thr	Pro	Ala	Ala	Trp	Lys
			420					425					430		

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<210> 64
<211> 513
<212> PRT
<213> Halobacterium sp.

<400> 64
Met Ala Ser Ala Pro Gln Ile Thr Leu Gly Leu Ser Gly Ala Thr Ala
 1          5          10          15
Asp Asp Val Ile Ala Val Ala Arg His Glu Ala Arg Ile Ser Ile Ser
          20          25          30
Pro Gln Val Leu Glu Glu Leu Ala Ser Val Arg Ala His Ile Asp Ala
          35          40          45
Leu Ala Ser Ala Asp Thr Pro Val Tyr Gly Ile Ser Thr Gly Phe Gly
 50          55          60
Ala Met Ser Asp Thr Arg Ile Asp Ala Ala Asp Arg Glu Ala Leu Gln
 65          70          75          80
Ala Asn Leu Val Arg Ser His Ala Ala Gly Ala Gly Ser Glu Leu Asp
          85          90          95
Thr Ala Ala Val Arg Ala Leu Leu Val Thr Arg Leu Asn Ala Leu Ala
          100          105          110
Lys Gly Tyr Ser Gly Ile Arg Glu Arg Val Leu Asp Val Leu Val Gly
          115          120          125
Leu Leu Asn Glu Gly Val His Pro Val Val Pro Ser Arg Gly Ser Leu
          130          135          140
Gly Ala Ser Gly Asp Leu Ala Pro Leu Ala His Met Ser Arg Val Leu
145          150          155          160
Ile Gly Glu Gly Gln Ala Thr Asp Val Ala Gly Glu Arg Met Pro Ala
          165          170          175

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Ala Glu Ala Leu Ala Ala Ala Asp Leu Glu Pro Val Thr Leu Gln Ala
 180 185 190
 Lys Glu Gly Leu Ala Leu Ile Asn Gly Thr Gln Leu Thr Thr Gly Val
 195 200 205
 Ala Ala Leu Ala Leu Val Asp Ala Glu Arg Val Leu Arg Ser Ala Asp
 210 215 220
 Thr Ala Gly Ala Leu Thr Thr Glu Val Thr Met Ser Thr Thr Ala Ser
 225 230 235 240
 Cys Ala Pro Ala Ile His Glu Pro Val Arg Pro His Asp Gly Gln Ala
 245 250 255
 Val Ser Ala Arg His Ile Arg Asn Leu Thr Ala Gly Ser Glu Val Leu
 260 265 270
 Asp His His Arg Asp Cys Asp Gly Arg Val Gln Asp Ala Tyr Ser Ile
 275 280 285
 Arg Cys Leu Pro Gln Val His Gly Ala Val Arg Asp Ala Leu Asp His
 290 295 300
 Leu Arg Ala Ala Val Ala Thr Glu Leu Asn Ser Ala Thr Asp Asn Pro
 305 310 315 320
 Leu Val Phe Pro Ser Gly Thr Val Val Ser Gly Gly Asn Phe His Gly
 325 330 335
 Glu Val Leu Ala Leu Arg Leu Gly Tyr Ala Ala Ser Ala Leu Ala Glu
 340 345 350
 Leu Ala Ala Ile Ser Glu Arg Arg Thr Asp Arg Leu Leu Asn Pro Glu
 355 360 365
 Thr Gln Glu Pro Leu Glu Pro Phe Leu Ala Pro Asp Ser Gly Leu His
 370 375 380
 Ser Gly Leu Met Ile Pro Gln Tyr Thr Ala Ala Ser Leu Val Asn Asp
 385 390 395 400
 Leu Arg Ser Leu Gly Gln Pro Ala Thr Leu Asp Asn Ala Ser Val Ser
 405 410 415
 Gly Ala Gln Glu Asp His Val Ser Met Ser Ala Gly Ala Ala Tyr Asn
 420 425 430
 Phe Arg Glu Ala Val Glu Lys Ala Ala Thr Val Val Gly Val Glu Leu
 435 440 445
 Leu Cys Gly Ala Gln Gly Arg Glu Phe Leu Asp Pro Leu Ala Leu Gly
 450 455 460
 Ala Gly Thr Ala Ala Ala Tyr Asp Leu Val Arg Ser Glu Val Ser Glu
 465 470 475 480

0903715 07001
 1003720 542EE660

<400>	65															
Val	Val	Val	Gly	Thr	Ser	Gly	Thr	Thr	Ala	Glu	Asp	Val	Val	Ala	Val	
1				5					10					15		
Ala	Arg	His	Gly	Ala	Arg	Val	Glu	Leu	Ser	Ala	Ala	Ala	Val	Glu	Ala	
			20					25					30			
Leu	Ala	Ala	Ala	Arg	Leu	Ile	Val	Asp	Ala	Leu	Ala	Ala	Lys	Pro	Glu	
			35				40					45				
Pro	Val	Tyr	Gly	Val	Ser	Thr	Gly	Phe	Gly	Ala	Leu	Ala	Ser	Arg	His	
	50					55					60					
Ile	Gly	Thr	Glu	Leu	Arg	Ala	Gln	Leu	Gln	Arg	Asn	Ile	Val	Arg	Ser	
65					70					75					80	
His	Ala	Ala	Gly	Met	Gly	Pro	Arg	Val	Glu	Arg	Glu	Val	Val	Arg	Ala	
				85					90					95		
Leu	Met	Phe	Leu	Arg	Leu	Lys	Thr	Val	Ala	Ser	Gly	His	Thr	Gly	Val	
			100					105					110			
Arg	Pro	Glu	Val	Ala	Gln	Thr	Met	Ala	Asp	Val	Leu	Asn	Ala	Gly	Ile	
		115					120					125				
Thr	Pro	Val	Val	His	Glu	Tyr	Gly	Ser	Leu	Gly	Cys	Ser	Gly	Asp	Leu	
	130					135					140					
Ala	Pro	Leu	Ser	His	Cys	Ala	Leu	Thr	Leu	Met	Gly	Glu	Gly	Glu	Ala	
145					150					155					160	
Glu	Gly	Pro	Asp	Gly	Thr	Val	Arg	Pro	Ala	Gly	Glu	Leu	Leu	Ala	Ala	
				165					170					175		
His	Gly	Ile	Ala	Pro	Val	Glu	Leu	Arg	Glu	Lys	Glu	Gly	Leu	Ala	Leu	
			180					185					190			
Leu	Asn	Gly	Thr	Asp	Gly	Met	Leu	Gly	Met	Leu	Val	Met	Ala	Leu	Ala	
		195					200					205				
Asp	Leu	Arg	Asn	Leu	Tyr	Thr	Ser	Ala	Asp	Ile	Thr	Ala	Ala	Leu	Ser	
	210					215					220					

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<210> 66
<211> 502
<212> PRT
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<400> 66

Ala Arg His Glu Ala Arg Ile Ser Ile Ser Pro Gln Val Leu Glu Glu
20 25 30

Pro Val Tyr Gly Ile Ser Thr Gly Phe Gly Ala Leu Ala Thr Arg His
50 55 60

His Ala Ala Gly Met Gly Glu Pro Val Glu Arg Glu Val Val Arg Ala
85 90 95

Leu Met Phe Leu Arg Ala Lys Thr Leu Ala Ser Gly Arg Thr Gly Val
100 105 110

Arg Pro Val Val Leu Glu Thr Met Val Gly Met Leu Asn Ala Gly Ile
115 120 125

Thr Pro Val Val Arg Glu Tyr Gly Ser Leu Gly Cys Ser Gly Asp Leu
130 135 140

Ala Pro Leu Ser His Cys Ala Leu Val Leu Met Gly Glu Gly Glu Ala
145 150 155 160

Thr Asp Ala His Gly Asp Ile Arg Pro Val Pro Glu Leu Phe Ala Glu
165 170 175

Ala Gly Leu Thr Pro Val Glu Leu Ala Glu Lys Glu Gly Leu Ala Leu
180 185 190

Val Asn Gly Thr Asp Gly Met Leu Gly Gln Leu Ile Met Ala Leu Ala
195 200 205

Asp Leu Asp Glu Leu Leu Asp Ile Ala Asp Ala Thr Ala Ala Met Ser
210 215 220

Val	Glu	Ala	Gln	Leu	Gly	Thr	Asp	Gln	Val	Phe	Arg	Ala	Glu	Leu	His
225					230					235					240

Glu Pro Leu Arg Pro His Pro Gly Gln Gly Arg Ser Ala Gln Asn Met
245 250 255

Phe Ala Phe Leu Ala Asp Ser Pro Ile Val Ala Ser His Arg Glu Gly
260 265 270

Asp Gly Arg Val Gln Asp Ala Tyr Ser Leu Arg Cys Ser Pro Gln Val
275 280 285

Thr Gly Ala Ala Arg Asp Thr Ile Ala His Ala Arg Leu Val Ala Thr
 290 295 300
 Arg Glu Leu Ala Ala Ala Ile Asp Asn Pro Val Val Leu Pro Ser Gly
 305 310 315 320
 Glu Val Thr Ser Asn Gly Asn Phe His Gly Ala Pro Val Ala Tyr Val
 325 330 335
 Leu Asp Phe Leu Ala Ile Ala Val Ala Asp Leu Gly Ser Ile Ala Glu
 340 345 350
 Arg Arg Thr Asp Arg Met Leu Asp Pro Ala Arg Ser Arg Asp Leu Pro
 355 360 365
 Ala Phe Leu Ala Asp Asp Pro Gly Val Asp Ser Gly Met Met Ile Ala
 370 375 380
 Gln Tyr Thr Gln Ala Gly Leu Val Ala Glu Asn Lys Arg Leu Ala Val
 385 390 395 400
 Pro Ala Ser Val Asp Ser Ile Pro Ser Ser Ala Met Gln Glu Asp His
 405 410 415
 Val Ser Leu Gly Trp His Ala Ala Arg Lys Leu Arg Thr Ser Val Ala
 420 425 430
 Asn Leu Arg Arg Ile Leu Ala Val Glu Met Leu Ile Ala Gly Arg Ala
 435 440 445
 Leu Asp Leu Arg Ala Pro Leu Lys Pro Gly Pro Ala Thr Gly Ala Val
 450 455 460
 Leu Glu Val Leu Arg Ser Lys Val Ala Gly Pro Gly Gln Asp Arg Phe
 465 470 475 480
 Leu Ser Ala Glu Leu Glu Ala Ala Tyr Asp Leu Leu Ala Asn Gly Ser
 485 490 495
 Val His Lys Ala Leu Glu
 500

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